

Update from the Implementation Committee

EGO Council 31 October 2024

EGO-VIRGO implementation committee

Outline

- EGO-Virgo Implementation committee
- Steps taken so far
- Top priorities
- VirgoLab Organisation Proposal document
 - VirgoLab purpose and organisations
 - Organigram
 - Projects and technical teams
 - Governance bodies: EB, TC, Virgo Board of Pls
 - Management positions: EGO Director, EGO-Virgo Programme manager
 - Resources and Resources review procedure
- Approval process Virgo Bylaws
- Issues to discuss later
- Next steps

EGO-Virgo Implementation Committee

Aim for the committee: preparing the implementation of the recommendations from the Organisational review report. (EGO Council is the implementation owner)

Implementation Committee members: **Remark: we would like to have a written mandate/charge. Could you provide us with one?**

- From EGO Council: Marco Pallavicini, Vincent Poireau, Jorgen D'Hondt;
- EGO Director: Massimo Carpinelli;
- Virgo spokesperson: Gianluca Gemme;
- Bureau members: Ursula Bassler (chair of the committee), Rosemarie Aben (vice-chair and scientific secretary), Franco Carbognani (EGO representative), Viola Sordini (Virgo representative), Tjonnie Li ('New Virgo member' experience).

Additionally, there are three senior advisors from the Virgo collaboration: Benoit Mours, Fulvio Ricci, Jo van den Brand.

First meeting of the committee: 29 August 2024, since then weekly Bureau meetings and one general meeting (2 October). Next general meeting: 25 November.

Steps taken so far by the Committee

Steps taken so far:

- Compiled an excel-sheet with classification of the organisation review recommendations;
- Identified the top 4 priorities to implement first;
- Adapted the organigram from the review report to suit a matrix organisation for VirgoLab;
- First study of the implications for the organisational structure of the transition to IGWN;
- First study of the Virgo Bylaws to fit the transition to VirgoLab;
- First simulation of VirgoLab membership (tool has been developed, input needs update);
- First draft of a proposal for the VirgoLab Organisation.

N.B. The former Organisational review Committee has been consulted on the adapted Organigram and the implications of IGWN on the proposed organisational structure.

Identification of top priorities

Recommendation	Priority level (1 top, 3 lower)	Time estimate	Required funding	Additional required staff	Sensitivity	Stakeholders	Implementation owner	Legal	Practical concerns	Status	Comments
Organization and Governance											
1.1 EGO must play a much stronger role in detector construction, operation and integration after acceptance of detector technologies at the EGO site.		1.5 Oct 24 - 2025	x	x	high	Council	Council	contract, EGO status?		Preparation	Council should provide to view on current detector extension on December meeting
1.2 Creation of Virgo labs		1 oct 24 - dec 24	x	identified profiles being secondment	very high	Task force, Implementation Comm, Council	Council / Virgo Phs			Preparation	Here the result of some work done in EGO on this point: On Functional, Financial and Man. Organization and Hiring Virgo Labs Doc
1.3 All technical decisions regarding operations and upgrades are made by the Executive Board (EB).											
2.1 Members and chair of the board		1 oct 24 - dec 24	x	Secondment of coordinators to EGO?	high	Task force, Implementation Comm, Council, VSC	Council / Virgo Phs	x		Preparation	
2.2 Creation of Technical committee		1 oct 24 - dec 24	x	x	high	Task force, Implementation Comm, Council, VSC	EGO Director	x		Preparation	
2.3 Transition from VSC to EB - other responsibilities		1 2025	x	x	very very high	Task force, Implementation Comm, Council, VSC	Council / Virgo Phs	x		Preparation	
3. Oversight by the EGO Council should be strengthened by appointing a program officer							Implementation Comm, Council	Council	x	Preparation	
3.1 The role foreseen in oversight and exchange between EGO Director and EGO Council		1 oct 24 - dec 24	-	x	med			Council	x	Preparation	
Technical Decisions											
4. EGO and Virgo must adopt a rigorous project management structure that utilizes modern tools and procedures for detector operations and Observing Run, similar to any large scale international research infrastructure.											
4.1 Rigorous reviews with external reviewers		1 oct 24 - 2025	reviewers travels / compensation	reviewers availability	med		Virgo Groups Phs, Virgo Labs Directorate	EBPO	x	Ongoing	An external review committee has been introduced for ADV+ Phase 1 - OS and it is being involved into the TOR review process in terms of tasks, Virgo has adopted the Technical Documentation System (TDS) where documentation can be effectively managed and accessed. The main issue regards making available the documentation, both for lack of time and Intellectual Property issues that need cleared out.
4.2 All documentation centrally curated and available		2 oct 24 - 2025	x	x	med		Virgo Groups Phs, Virgo Labs Directorate	IP policies review?		Ongoing	
4.3 Thorough risk analysis, resource estimation for big technical decisions		1 oct 24 - 2025	x	FTE	med		EBPO	x		Ongoing	To help here, the hiring of 2 FTE on System Engineering for the ADV+ PO is currently foreseen
4.4 Adopt a rigorous workflow		1 oct 24 - 2025	x	FTE	med		EBPO	x		Ongoing	To help here, the hiring of 2 FTE on System Engineering for the ADV+ PO is currently foreseen
4.5 Ensure adequate responsibilities for subsystems through review of proposals		2 oct 24 - 2025	x	FTE	med		EBPO	x		Ongoing	To help here, the hiring of 2 FTE on System Engineering for the ADV+ PO is currently foreseen
4.6 Increase the pool of experts for all subsystems by trainings		1 oct 24 - 2025	missions + long missions + long funds	-10 - 20 FTE	med		EB, Virgo Groups Phs	x		Ongoing	In the framework of the ADV+ Outreach Training sessions, a first 1-week long school focused on the Science of the detector, is being organized for November 2024
Financial Decisions											
5. Additional financial resources are essential for the future of EGO/Virgo.											
5.1 Additional funding is mandatory		1 2025	x	x	med	FA	Council delegates/ego director	x	Independent of EGO or Virgo involved additional bodies	Done	4.5 en 2022, 4.95 2023, 6.62 2024, 4.73 en 2025 --> rattrapage de l'inflation depuis 2017, 2027, 5.82 en Italie et en France, carte état 2025 et 2028 --> 10 ME
5.2 All Virgo members contribute through a Common Fund		1 2025	yes	x	med	FA	Council Delegates/ Virgo Phs	Virgo MCHA to be updated		Ongoing	MCHA/our --> mise en place par Massimo
5.3 New Council members should contribute beyond CF		1 2025-2028	yes	x	med	FA	Council	EGO convention to be updated		Ongoing	Milner 400k sans augmentation, mais in-kind, upgrade - sans reprise, Belgique 100k+upgrade (Raman), Pologne, Espagne (in ec
6. The financial budget of EGO and the financial flows between EGO and Virgo have to be reviewed and clarified accordingly.											
6.1 EGO council should present finances in transparent manner		2 dec 2023	x	x	med	Council	EGO director	x		Planned	
6.2 Budget for external institutes should not flow through EGO		2 2025	x	x	med	EGO	EGO director	x		Planned	to be decided with MESRSDFM/Virgo/France: mission or investment (LMA?)
6.3 Budget for external institutes should not flow through EGO		2 2025	x	x	med	EGO	EGO director	x		Planned	to be decided with MESRSDFM/Virgo/France: mission or investment (LMA?)
6.4 Also in-kind contributions should be accounted for		2 dec 2023	x	x	med	EGO	EGO director	x		Planned	
Human Resources											
7. A careful assessment of the EGO staffing needs should be carried out as soon as possible, with the goal of (i) identifying critical staffing shortfalls, and (ii) identifying both the EGO Council's needs for increasing funding for EGO staff and closing the staffing shortfall gap.											
7.1 EGO analysis of overall staffing needs		1 oct 24 - dec 24	x	yes	med	EGOE-EB	EGO director	x		Done	presentation staffing in June 2024 / staff positions, 3 positions UNESCO
7.2 EGO annual review of the internal EGO organization		1 dec 24/25	x	x	med	EGOE-EB	EGO director	x		Ongoing	Some limited EGO departments reorganization is ongoing associated to very urgent operational needs like the expenditure of the annual extraordinary maintenance budget). This should be aligned, or at least not in contradiction, with the report recommendations.
7.3 Attention to attracting and recruiting international staff		2 2025	x	x	med	EGOE-EB	EGO director	x		Planned	
7.4 Increase staffing by permanent funding and/or long-term secondment		2 2025	x	yes	med	EGOE-EB	EGO director	x		Planned	
Virgo Collaboration											
8. The Virgo Collaboration must have an increased engagement in (on-site) detector related activities and tasks of common interest.											
8.1 Virgo members should engage in (on-site) detector responsibilities		dec 2024 - early 1 2025			high	Virgo groups (including EGO), Virgo agencies	Virgo spokesperson/manager		The exact implementation might change a bit when the Virgo lab is defined, but we will have a short-term start (and maybe not successful) implementation.	Planned	We can imagine to enforce a rule (e.g. each subsystem has to have at least one person on site, or there must be at least N person to a on-site activity etc.) even before defining the Virgo lab. It is very important that we finalize the user list of needed FTE and profiles we formally request if do the run coordinator + communication coordinator). Also, we would need to have the agreement of the L agencies to be shared the travel expenses etc. We can focus on a short-term plan (for the coming time until June 2025) to get the need and take a bit more time for the "heavy commissioning" phase. This might be a "low-hanging fruit". I say only 2025 because of the calendar of internal MCh/Virgo groups with Virgo collaboration). However, we have reviewed for the half of Virgo groups in December 2023-January 2024 and will do so the other half this year. For fairness and to be sure we are ready we can structure the new rules this year but only put them in action at the next MCh round. Also, we should have undertaken the country service tasks, or "instrumental activities". Authorship in the LMA (upon to be done) is based on contributions to service tasks. It can be of different nature (documentation, computing, work on data quality, data sharing infrastructure, production of catalogs etc.), we instead imagine that membership of the Virgo lab (and authorship for detector-related papers) will be linked to instrumental activ
8.2 Authorship should be linked to instrument activities		1 comments			high	Virgo groups (including EGO), Virgo agencies	Virgo spokesperson/manager		hard to implement, related to ICORN internal decision (~2025)	Planned	
Virgo Outreach											
9. The EGO site should be made more attractive and scientifically vibrant for the EGO staff as well as the Virgo Collaboration members and the wider international gravitational-wave community.											
9.1 EGO and Virgo leadership should be based and present on site		2 -now	x		med	single collaboration	the Council? EGO/EGO on-site networking programs / external funding agencies and groups for secondment in professional positions with long-term missions			Planned	Maybe we can define a reasonable request for present management, and decide what we want to set as requirements in the future. We make sure we ensure transparency of communications and documentation of decisions.
9.2 Increase postdoctoral fellowships and long-term secondments		early 2025	could be great	x	med	EGO, Virgo groups	on site		It's not easy how that we can get the funding - the time needed to announce the positions and hire people.	Planned	From the information I have, this has proven to be very useful for EGO. We must make sure we are ready to welcome new person post present in having to be change for Virgo - it would also be very interesting to explore a kind of "exchange" program to invite some LIGO colleagues (below like or more senior) to spend some time at the site. This might also be a "low hanging fruit". I see this as a long-term project. We would first need to define a pool of concrete actions. Surely this will also happen as a consequence people being more on site.
9.3 Develop a vibrant scientific culture on site		3									
9.4 Establish a User's Office to assist visiting scientists/engineers		1 early 2025	don't think so	don't think so	low	EGO	EGO director (?)			Ongoing	This is definitely a long-term thing. I have the impression it does not necessarily need more person on-site as we could reorganize the EGO (or people seconded to EGO) resources, but would need to check. France what do you think? Somewhat related - we should do with the ongoing efforts to have a guest house for the detector with Massimo. France: the profile for the Administrative Assistant - User has been defined and recruitment process should start shortly.
Virgo Outreach											
9.5 Increase international and cultural diversity on-site		3			low	EGO	EGO director		This seems a natural consequence of previous decisions (users office, guest house, networking programs) and the number of people on site etc. I don't know if we want to engage specific actions to this point (and if we do it seems secondary).	Planned	
Virgo Outreach											
10. The impact of the prospect of the Einstein Telescope (ET) project on Virgo should be carefully managed.											
10.1 Funding agencies, Virgo and ET collaborations should keep Virgo as a priority		3 2025-	x	x	med	EGO council, Virgo collaboration, ET	EGO council president	x		Planned	A funding "batter" is open to it, it should fit into the regulations of the U.S. funding provider.
10.2 Look for opportunities to redirect existing ET R&D funding to Virgo		3 2025-2027	x	x	high	Virgo ET and Virgo EGO director, Virgo EB, ET EB	EGO council president	x		Planned	This can only be if a legal mechanism is established. This can only be if a legal mechanism is established.
10.3 Initiate a high level European gravitational waves coordination board		3 2025-2027	h.d.	x	med	Virgo EB, ET EB	EGO director			Planned	coordination with ET

To make a structured prioritisation for the implementation of the recommendations we have identified indicators that we filled in for each (sub)recommendation.

Indicators that we used:

- Priority level
- Estimated time
- Required funding
- Additional required staff
- Sensitivity
- Stakeholders
- Implementation owner
- Legal
- Practical concerns
- Status of implementation

Top priorities

Based on the excel sheet and the Organisation Review Report we extracted four top priority implementations:

- Creation of VirgoLab;
- Implementation of Executive Board;
- Implementation of Technical Committee;
- Transformation VSC to Collaboration Board or Virgo Board of Pls.

N.B. All recommendations will be implemented in due time, but we cannot do it all at once.

VirgoLab Organisation Proposal document

We have written this proposal to define exactly what will be implemented.

The draft document reflects the work in progress.

We would like to know if EGO Council agrees on the content of the proposal, so that we can work it out in further detail.

It contains:

- The definition of VirgoLab
- The organisational structure
- Explanations of the governance bodies
- Explanations of the management positions
- To be amended: procedures

The document/proposal is based on the current structure of the Virgo collaboration, yet a future transition to IWGN is taken into account.

VirgoLab Organisation

VirgoLab purpose

VirgoLab is mandated by the EGO Council for the **production of calibrated, high-quality strain gravitational wave data**, obtained with the Virgo Interferometer and to be provided to the Virgo Collaboration with sensitivities and timelines comparable to the data of the LIGO gravitational wave observatories.

The creation of VirgoLab is inspired by LIGOLab, the operating structure of the US gravitational wave antennas, yet taking into account the differences arising from the European funding structure and research landscape.

VirgoLab is meant to also fit into the future situation with IGWN.

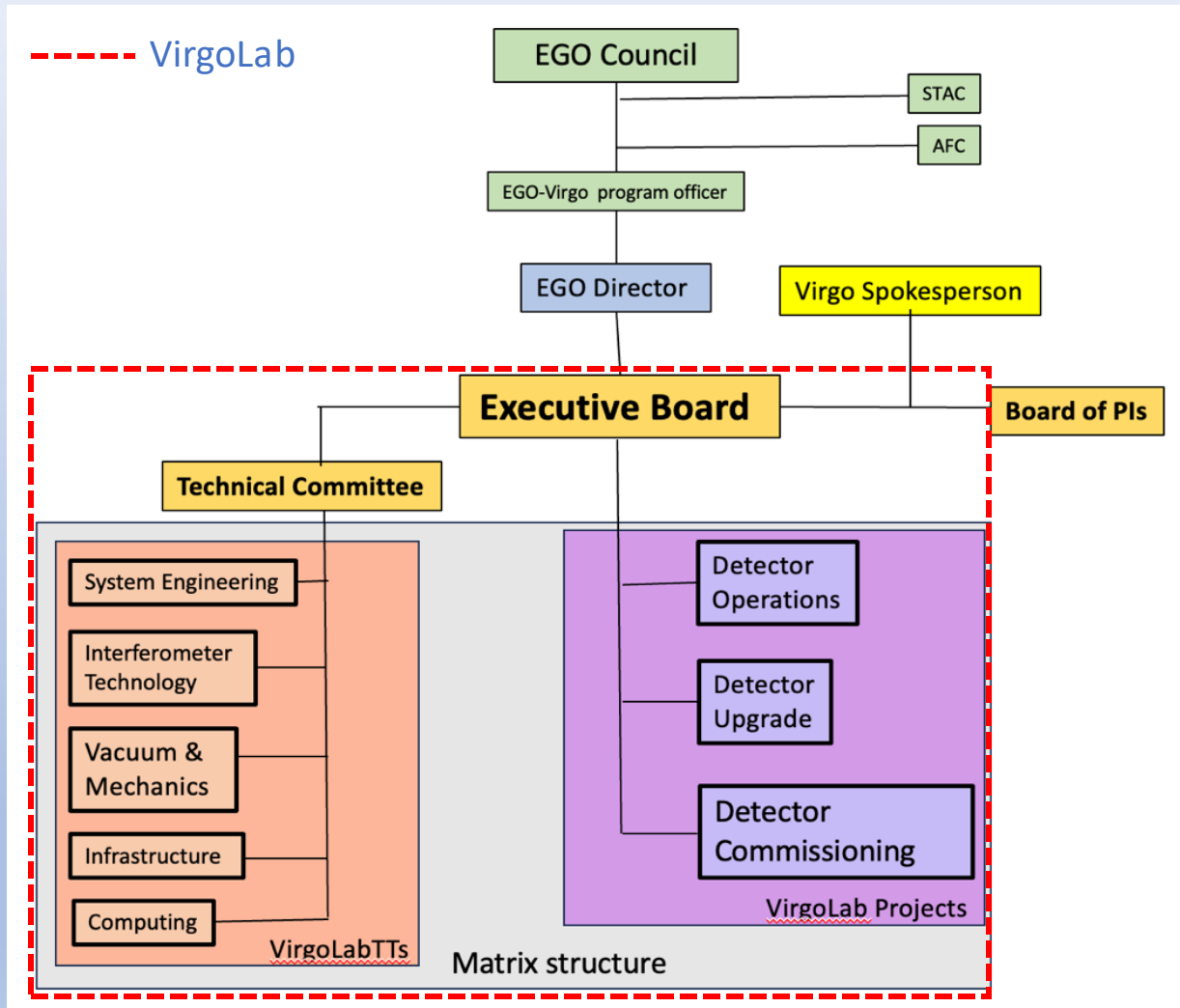
Question: What kind of entity is VirgoLab?

- An EGO project with international contributions?
- An international collaboration hosted by EGO?

VirgoLab organisation

- VirgoLab is set up as a **distributed laboratory** to enable joint operation, commissioning and upgrades by EGO and External Labs (i.e. Virgo laboratories, institutes and university departments);
- VirgoLab consists of **personnel from EGO and from the External Labs**;
- VirgoLab is **hosted by EGO** and embedded into EGO's organisational structure;
- The organigram of VirgoLab, sketched by the Organisational Review Committee, is proposed to be implemented as a **strong matrix organisation**;
- Strong matrix organisation: **individuals work in functional units** (technical teams, TT) and are at the same time committed to **contribute their technical expertise to one or more projects**. It balances the functional responsibilities within each VirgoLab TT with the specific needs of each VirgoLab Project.
See the back-up slides for more information on matrix organisations.

VirgoLab organigram



Detector Upgrade, Operations and Commissioning are organised as VirgoLab Projects, supported by VirgoLab Technical Teams (functional units) that focus on the core technical areas.

N.B. Technical teams are not the same as the EGO departments.

Future links with IGWN will be defined.

VirgoLab Projects

The projects require collaboration across the VirgoLab Technical Teams, leveraging expertise and human resources from each.

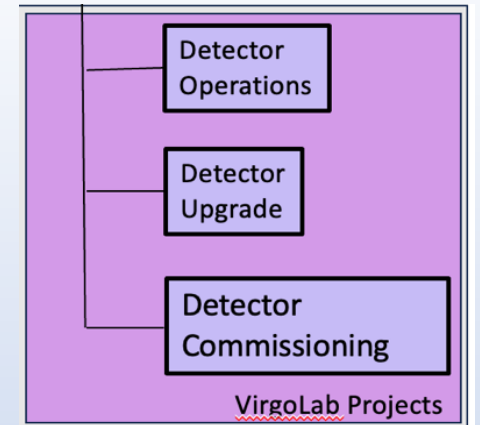
Each project will be led by a Project Coordinator:

- They manage all aspects of the project: planning, resource allocation, execution and delivery;
- They direct personnel on tasks related to project deliverables, deadlines, and milestones, in agreement with the MoA with the concerned External Labs;
- They are responsible for using the workmanship standards that are formulated by the Technical Teams.

Procedures concerning the Project Coordinator:

- The Project Coordinators are proposed by the EGO Director, presented to the VirgoLab Board of PIs and approved by EGO Council;
- The Project Coordinators are appointed for a renewable fixed term (same term as the EGO director).

Personnel participating in a project will report to their Project Coordinator for project-specific work.



VirgoLab Technical Teams

The VirgoLab Technical Teams (TTs) bring together all the technical expertise required for a well-functioning Virgo interferometer.

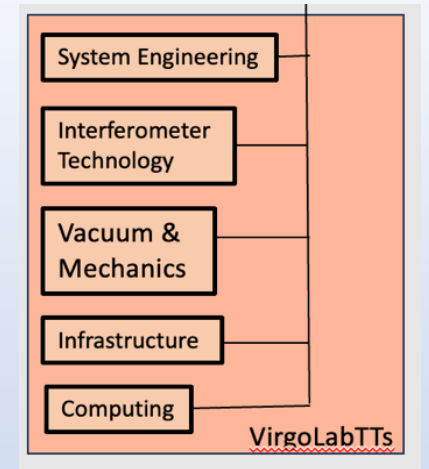
Key responsibility of VirgoLab TTs: Definition of workmanship standards that ensure consistency, quality benchmarking, and risk reduction in project outputs.

Each VirgoLab TT is led by a Team Leader:

- They coordinate the functional expertise and resources of the team;
- They ensure that the defined workmanship standards are applied in all projects;
- They are responsible for training and competence development of the TT members (in collaboration with the External Lab or EGO department);
- The VirgoLab Team Leaders are appointed by the EB.

Question: should the Team Leaders have a fixed/renewable term?

Each member of a VirgoLab TT will report to their Team Leader on their activities and for their technical development and skill training.



Initial structure, to be further defined by EB.

Question Co-leadership

Question: Should we introduce co-leadership for Project coordinators and for Team Leaders, with one on-site and one off-site?

Governance bodies

Executive board (1/3)

Key responsibilities:

- **Operational and Upgrade Decisions:** The EB takes all decisions concerning the operation, commissioning and upgrades of the Virgo interferometer;
- **Resource loading:** The EB establishes the necessary resources for the projects and manages the available resources to reach the best performances of the Virgo Interferometer;
- **On-site equipment:** The EB is responsible for all equipment in the Virgo Interferometer. It will take over the responsibility from the External Lab as soon as the equipment is inserted into the Virgo Interferometer.

Question: Who is the owner of the Virgo Equipment at the different stages? (during building, on site, after installation has finished)?

Executive board (2/3)

Composition:

- EGO Director (Chair);
- Upgrade Coordinator;
- Commissioning Coordinator;
- Detector Operation Coordinator;
- Technical Coordinator (chair of the Technical Committee);
- Virgo Spokesperson;
- Chair of the Virgo Lab Board of PIs.

Question: Should we include the Deputy Spokesperson and a financial/administrative officer as EB members as well?

The composition must ensure that all aspects of Virgo's operation and future upgrades are covered by the appropriate expertise.

The members of the EB are on site on a regular basis, typically a few days a week and more if the situation requires it. (EGO Council should define exactly what 'regular basis' means)

Question: Should we relax this requirement for some roles?

Executive board (3/3)

EB Chair:

- The EB is chaired by the EGO Director

Meetings:

- The EB meets on a weekly basis. In case of critical and urgent matters, the EB meets as frequently as necessary.

Decision-making:

- The EB is committed to striving for consensus in its decisions;
- In the event that the EB cannot reach consensus on a particular issue the EGO Director has the final authority.

Reporting:

- The EGO Director reports to the EGO Council on the decisions of the EB;
- The members of the EB report the relevant decisions to the entities they are responsible for.

Question: What kind of EB voting system should we include: no votes, indicative votes, binding votes? The decision changes the way the EB is functioning in case of disagreement.

Technical Committee (1/3)

Key responsibilities:

- **Technical Advice:** Review and recommend on technical proposals, system performance, and upgrade plans;
- **Risk Management:** Assess and advise on technical risks and mitigation strategies;
- **Subsystem Coordination:** Ensure effective collaboration between technical teams and VirgoLab Projects;
- **Oversight of Training and Safety procedures:** Responsible for the adequate training and safety procedures to be in place;
- **Coordination TTs:** Responsible for the coordination among the different VirgoLab TTs.

Technical Committee (2/3)

Composition:

- Technical Coordinator (serving as Chair of the TC);
- VirgoLab Technical Team Leaders;
- Additionally, experts are invited to the meetings when necessary.

The Technical Coordinator is normally appointed by the EB from among the VirgoLab Team Leaders.

Technical Committee (3/3)

Meetings:

The TC meets on a monthly basis, additional meetings can be scheduled as needed, in particular on request of the EB.

Decision-making:

- The TC seeks consensus for the advice it provides, but all perspectives are presented to the EB;
- In case no consensus can be reached, the Technical Coordinator has the final authority;
- Final decision-making rests with the EB and the EGO Director.

Reporting:

- The TC reports directly to the EB, providing technical recommendations;
- Decisions taken by the EB or the TC are reported by the Team Leaders to their respective teams.

VirgoLab Board of PIs (1/3)

Board of PIs

The Board of PIs is the representation of the groups (External Labs + EGO) contributing to VirgoLab.

Question: what should be the minimum contribution is in order to be represented in the Board of PIs?

Key responsibilities:

- **Resource Review Process** (discussed in detail on slide 26)
 - The Board receives an annual report on the use of the resources provided by the External Labs to VirgoLab;
 - It reviews the resource requested for the upcoming year;
 - It liaises with the funding institutions for pledges of resources to be provided from the External Labs to VirgoLab.
- **Membership:** The Board of PIs is responsible for examining the participation of new groups to VirgoLab and oversees the establishment of the MoA between EGO and a new group.
- **Personnel Matters:**
 - The Board is represented in the search committee of the EGO director;
 - The Board expresses its vision on a geographically balanced scientific representation in IGWN in advance of the selection of the IWGN Spokespersons.

Note: The Board of PIs plays an important advisory role, but it does not interfere with the operational chain of command.

Virgo Board of PIs (2/3)

Composition:

- The PIs of the groups (External Labs + EGO) contributing to VirgoLab (The PIs in the Board are appointed by the External Labs themselves)
- The EGO Director and the Virgo spokesperson attend the meetings.

The Board elects a chair amongst its members.

Virgo Board of PIs (3/3)

Meetings:

The Board of PIs typically meets three to four times a year.

Decision-making:

- The Board of PIs strives for consensus in its decision-making (on matters such as the approval of the annual report, membership, personnel matters, election of its chair);
- Voting rules have still to be defined (i.e. simple majority, qualified majority).

Reporting:

While advisory in nature, the Board's feedback is communicated to the EB through the Chair of PIs to ensure that the perspective of the External Labs is considered in strategic decisions.

Question: Will the VirgoLab Board of PIs be put in place right at the start of VirgoLab, or will the VSC take this role until the transition to IGWN has been completed?

Management positions

EGO Director

Key responsibilities:

- The EGO Director has the final authority on all decisions concerning the operation and maintenance of the Virgo interferometer;
- They take ultimate responsibility for the success or failure of Virgo's mission;
- They are the chair of the VirgoLab Executive Board (EB);
- They are in charge of leveraging expertise and resources from the External Labs (together with Council representatives, the chair of board of PIs and the Spokesperson).
- They represent VirgoLab in EGO Council.

Mandate and appointment:

- The Director's term is fixed and renewable once, with the renewal decision being taken by the EGO Council, in consultation with the Board of PIs;
- The EGO Director is appointed by EGO Council after an international recruitment process operated by a search committee.

Reporting:

- The EGO Director reports to the EGO Council. They attend EGO Council meetings. As chair of the VirgoLab EB, they attend the meetings of the Board of PIs.

EGO-Virgo program manager

EGO-Virgo program officer

Key responsibilities:

- The EGO-Virgo Program Officer should insure liaison between EGO Council and the EGO director;
- Their responsibility is mostly focused on VirgoLab, but also include the other EGO activities;
- They follow the activities and decisions of the VirgoLab EB;
- They oversee the implementation of EGO Council decisions, in particular concerning VirgoLab;
- In case of difficulties, they could be the first level of information and exchange, before calling EGO Council.

Mandate and appointment:

- The mandate of the Program Officer is defined by EGO Council;
- The Program Officer will be appointed by EGO Council. The person should have no involvement in the VirgoLab or associated scientific collaboration.

Reporting:

- The Program Officer exchanges on a weekly basis with the EGO director and reports to the EGO Council President.

Resources and Processes

Resources

- The EB and especially the EGO director must have access to resources in order to fulfil their mandate;
- MoAs between EGO and the External Labs will specify the commitment from the External Labs to VirgoLab. There can be two types of commitments:
 - Commitments for resources: financial resources and personnel working for VirgoLab for xx% of their time;
 - Commitments to deliver: e.g. a commitment to build equipment to be inserted into the interferometer.

Resources review procedure - proposal

1. The EGO Director presents the following documents to the Board of Pls:
 - An annual report on the use of the financial and human resources that were provided to EGO and to the External Labs for commitments in VirgoLab;
 - A proposal for the required resources for the coming year;
 - A forecast of the resources required for the next five years.
2. The Board of Pls reviews the requested resources and liaises with their funding agencies to secure the necessary resources for VirgoLab, both financial and human.
3. The EGO director consults the STAC and AFC for feedback on these documents, and adapts them following the feedback;
4. The EGO Director presents the final annual report, proposal of resources for the coming year, and the 5-year forecast, as well as a document summarising the committed pledges of each group to EGO Council;
5. EGO Council approves the documents (after adjustment if necessary) and these then form the basis of the commitment for the following year.

Approval process Virgo Bylaws

The Virgo Bylaws need modification in order to facilitate the transition of the VSC, VEC and JEVCO to the VirgoLab structure.

The procedure should be formally clean. A proposal:

1. Proposal of modification of Virgo Bylaws, EGO-Virgo MoA, and to other ancillary documents (e.g. mandates of the coordinators) to EGO Council;
2. Approval of these documents in EGO Council;
3. One or more meetings to present the VirgoLab organisation proposal and the adapted Bylaws to the VSC.
 - The Council members should be present during this meeting;
 - In advance of this meeting Council members must have informal preparatory conversations with the VSC members to ensure that the VSC will vote in pro of the new bylaws.
4. The VSC will vote on the adapted Virgo Bylaws.

Next steps

Outstanding issues

- What kind of entity is VirgoLab (slide 9):
 - An EGO project with international contributions?
 - An international collaboration hosted by EGO?
- Who is the owner of the Virgo Equipment at the different stages? (slide 16)
- How are external project reviews organised? Who is the authority that can call them in? The Board? The projects? The Council? (not discussed today)
- What are the benefits of participating in VirgoLab with respect to authorship criteria in scientific collaborations? (not discussed today)
- The members of VirgoLab may want to publish results and developments of the Virgo detector. What will be the publication policy and the review process for such publications? (not discussed today)
- How will the transition of the VSC, VEC and JEVCO in the VirgoLab structure take place ? The Virgo Collaboration bylaws will need to be modified, will the VSC vote on the modification as foreseen currently in the bylaws? (slide 31)
- Who has oversight over the common fund? Could this be EGO council, as all countries that pay common fund are represented there? Or should it be a separate body (i.e. a Resources Review Board with funding agency representatives)? (not discussed today)

Outstanding issues concerning the transition to IGWN

- Will the VirgoLab Board of PIs be put in place right away, or will the VSC take this role until the transition to IGWN? (Slide 31)
- What will be the scientific representation in the EB/Board of PIs once IGWN is created? (not discussed today)
- How will IGWN take into account the contributions made to VirgoLab with respect to the scientific publication? (not discussed today)

Next steps

- The Committee will adjust the VirgoLab Organisation Proposal document according to suggestions raised today;
- The Committee will clarify the outstanding issues, processes and details, and adapt the proposal accordingly;
- The Committee will test whether the proposal can work in practice using a number of case studies, and propose changes to the proposal if necessary;
- Gianluca, together with the Committee, will make a proposal for the Virgo Bylaws to fit the transition to VirgoLab;
- The updated VirgoLab Organisation Proposal and modified Virgo Bylaws are presented to the Collaboration, VSC and EGO Staff.

Additional material

VirgoLab Projects

- **Detector Operations:** Focused on the daily operations of the interferometer, ensuring smooth running and prompt troubleshooting if any issue arises. Operations include the production of calibrated, high-quality strain data as well as the computing infrastructure required to carry out strain data production.
- **Detector Upgrade:** Responsible for planning and executing major upgrades to the interferometer's systems, with a focus on improving sensitivity and performance.
- **Detector Commissioning:** Manages the process of bringing new systems online, tuning the interferometer after upgrades or maintenance, and ensuring it meets the required operational standards.

VirgoLab Technical Teams

- **System Engineering:** Oversees the overall system design and integration, including risk management and quality control, ensuring the coherence of all subsystems.
- **Interferometer Technology:** Focuses on the technical aspects of the interferometer, including optics, photonics, electronics and detector components.
- **Vacuum & Mechanics:** Responsible for the vacuum system and mechanical structures essential to Virgo's operation.
- **Infrastructure:** Manages site-specific infrastructure, including buildings, power systems, and environmental controls.
- **Information Technology:** Handles Computing infrastructure, data management, software development, and cybersecurity.

VirgoLab simulation

SVAC for: Commissioning, Detector, Operations

Showing breakdown for SVAC >= 0.5

Countries	Members Involved	SVAC	
		Total contribution	Avg. contribution / Member
France	89	47.925	0.54
LAPP	20	13.865	0.69
LUTH/CAEN	2	1	0.5
LMA-Lyon	16	9.15	0.57
ARTEMIS-Nice	12	3.76	0.31
APC - Université Paris Cité	6	3.15	0.53
L2IT, Toulouse	2	1.5	0.75
IJCLab	13	5.7	0.44
Institut Fresnel Marseille	5	3.15	0.63
g-MAG	4	1.95	0.49
IPHC Strasbourg	9	4.7	0.52
International	39	29.57	0.76
Spain	17	4.15	0.24
Italy	137	56.06	0.41
Netherlands	39	11.58	0.3
Belgium	11	4.85	0.44
Poland	6	2.9	0.48
Brazil	7	0.45	0.06
Totals	345	157.485	0.46

- Tool to simulate the VirgoLab is now live within the Virgo Members Database (G. Hemming, EGO)
- Shows all groups with at least one SVAC dedicated to Commissioning, Detector or Operations.
- A **dropdown menu** allows to make an additional selection on the individual SVAC.
- The classification of the activities and the numbers declared by members are being reshuffled **don't look at the numbers yet!** We will have a more meaningful version by December EGO council.

1 SVAC = a weekly effort of 35 hours during 46 weeks of a year

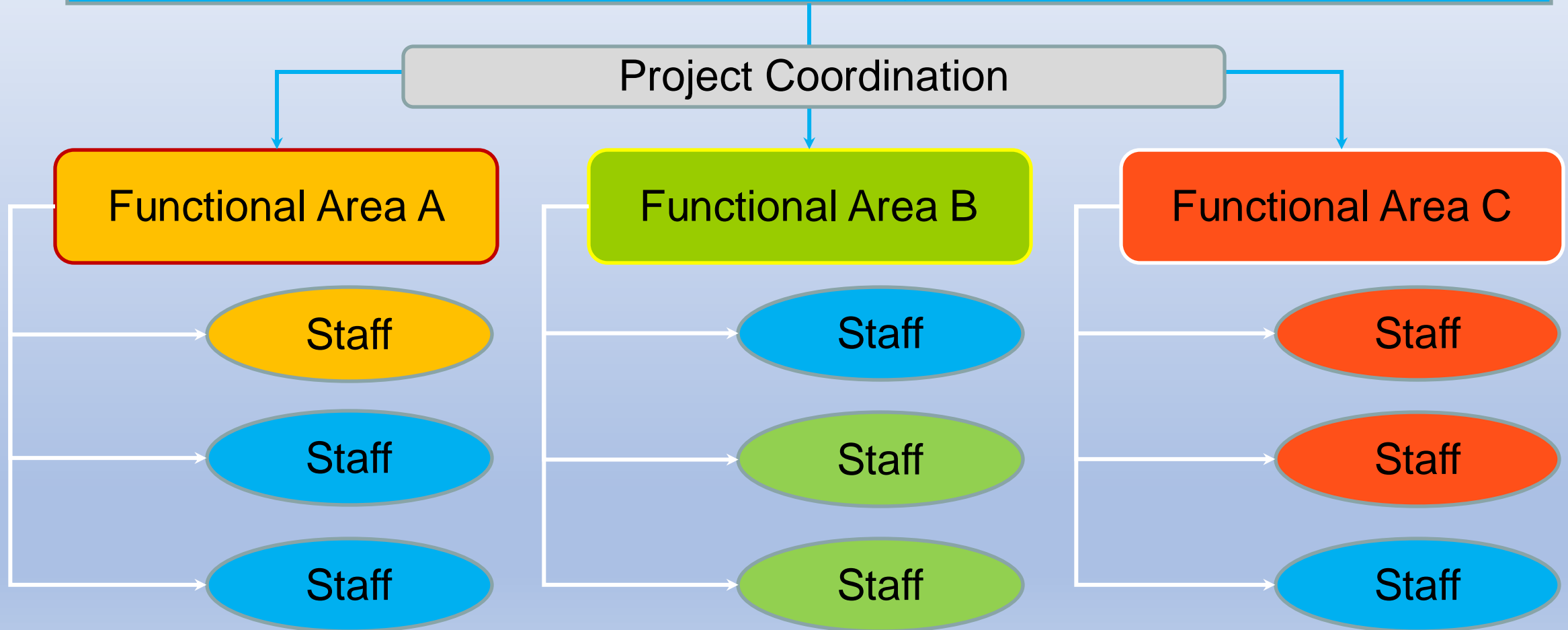
Additional material: Matrix organisation

Functional Organization

- The organization is grouped by area of specialization within different functional areas (electronics, mechanics, systems engineering, etc). In a functional organization, maximum power rests with the functional manager and the project manager's role in decision making is minimal.
- Advantages
 - the career progression of the team member is fully owned by the functional manager.
 - Team members report to only one boss, hence avoidance of conflicts in the chain of command.
 - Similar resources are centralized, hence better synergy within groups
- Disadvantages of functional organization;
 - Preference for functional specialization, at the cost of the project
 - No career path in project management
 - Inadequate integration across different functional areas
 - Conflict and rivalry between functional areas may impede communication
 - No individual has full authority and responsibility for the project. No proper accountability for the project can be expected.
 - Project manager has no authority

Projects in the Functional Organization

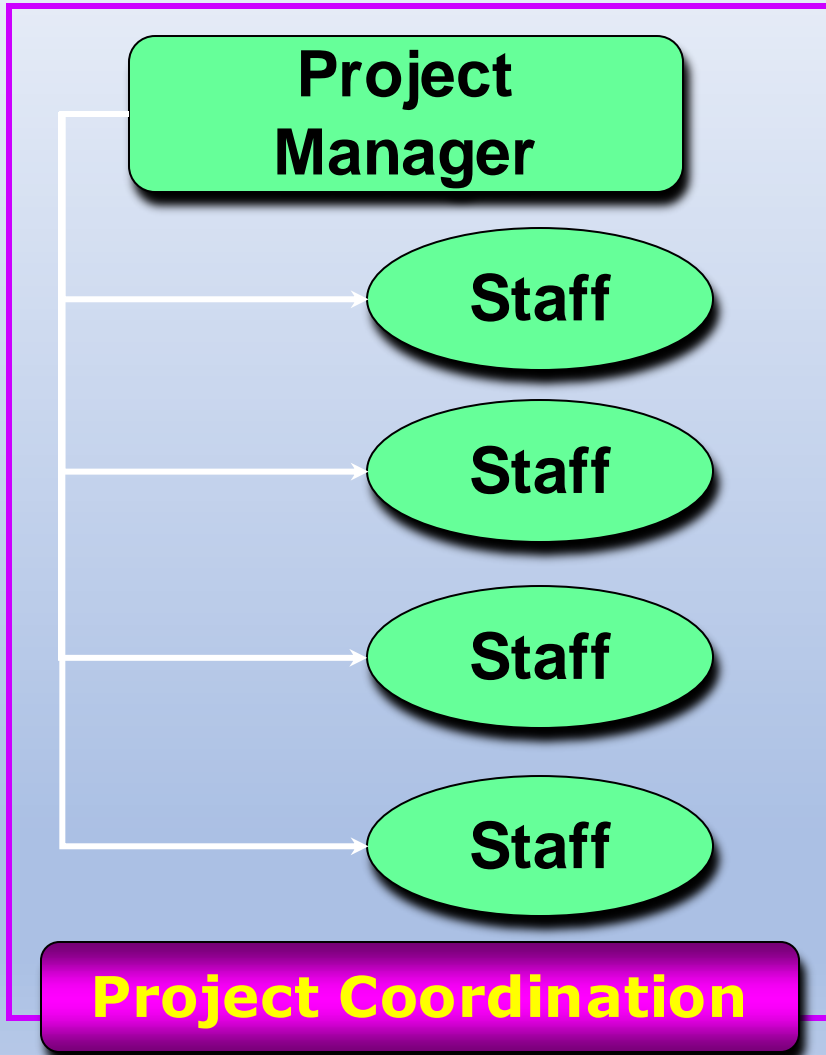
If more than one functional area is involved in a project, the coordination of project activities takes place through the hierarchy



Projectized Organization

- In projectized organization, all the work is considered as a project and the project manager has total control over the projects. Personnel are assigned to and report to a project manager.
- Advantages
 - Team members will be more committed to the project
 - Availability of career paths within the project management stream
 - More effective project related communication
- Disadvantages
 - When the project gets over, the team gets dismantled, hence lack of security leading short term commitments
 - Duplication of facilities and job functions e.g.:- administrative officer for each project, HR coordinator for each project, etc.
 - Less efficient use of resources. Project teams tend to hang on to resources both material and human, even after the need for them.

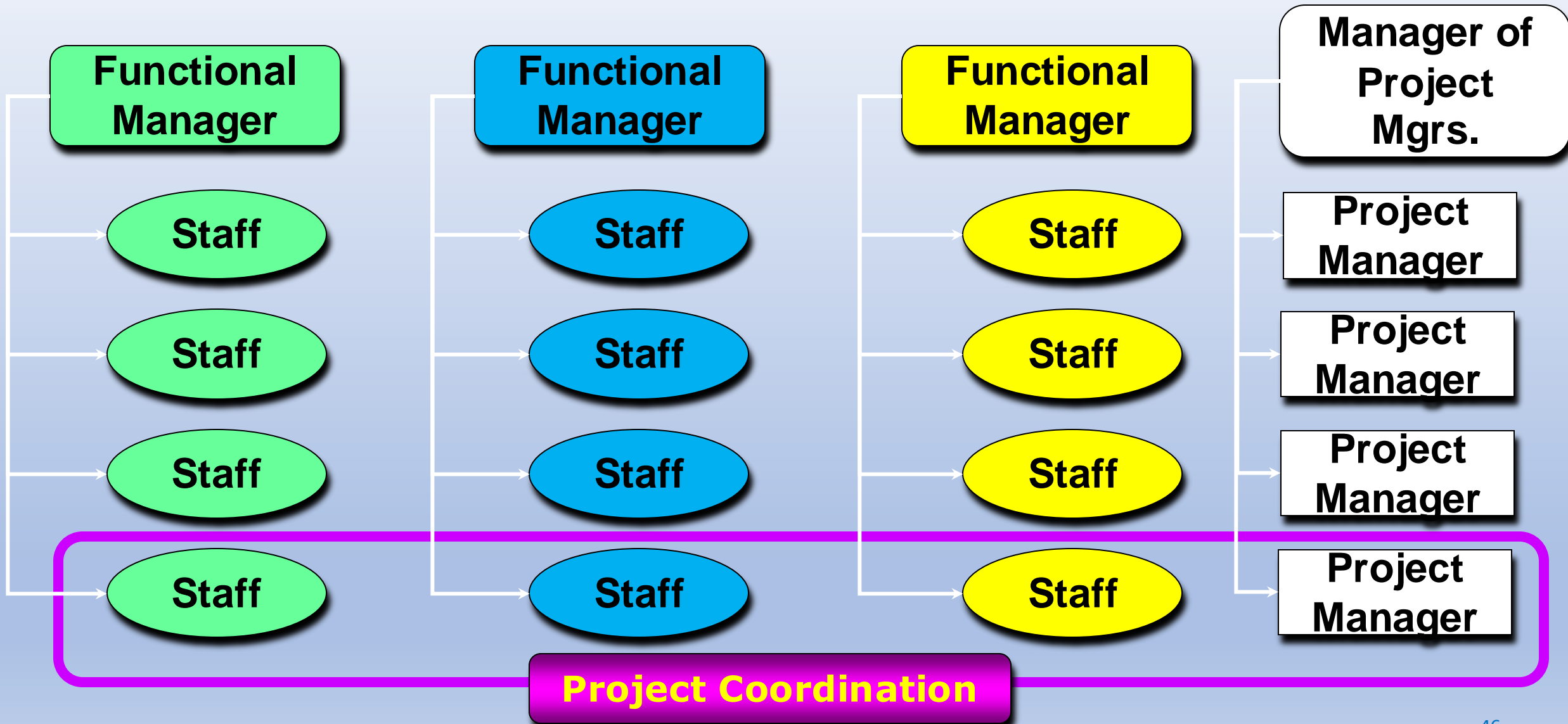
Projects in the Projectized Organization



Matrix Organization

- Matrix organization is a hybrid of both functional and projectized organization, trying to leverage the strength of both. The team members report to two bosses, the project manager and the functional manager.
- In a strong matrix, the power rests with the project manager. In a weak matrix, the power rests with the functional manager. In a balanced matrix, the power is shared between the project manager and the functional manager.
- Advantages
 - More support from functional organizations
 - Allows for the sharing of diverse resources across multiple projects
 - Better horizontal and vertical communication (better than functional)
- Disadvantages
 - More than one boss for project teams, leaving the team members between devil and deep sea, due to conflicts between the project manager and the functional manager
 - More complex to monitor and control, if it spans different locations
 - **there is a potential for conflict between project managers and functional managers**

The (Strong) Matrix Organization



Strong Matrix Organization

- In the “strong” - Matrix a project manager is selected to oversee the completion of the project across the various involved functional levels of the organization.
- The project manager is ultimately responsible for the project’s completion, has final say on major project decisions and controls most aspects of the project, including the assignment of functional personnel, what they do and when.
- The functional managers maintain title over their respective personnel and have consultation rights.
- Advantages
 - ensures a strong project focus by having a project manager who performs a coordinating and integrating role across functional areas

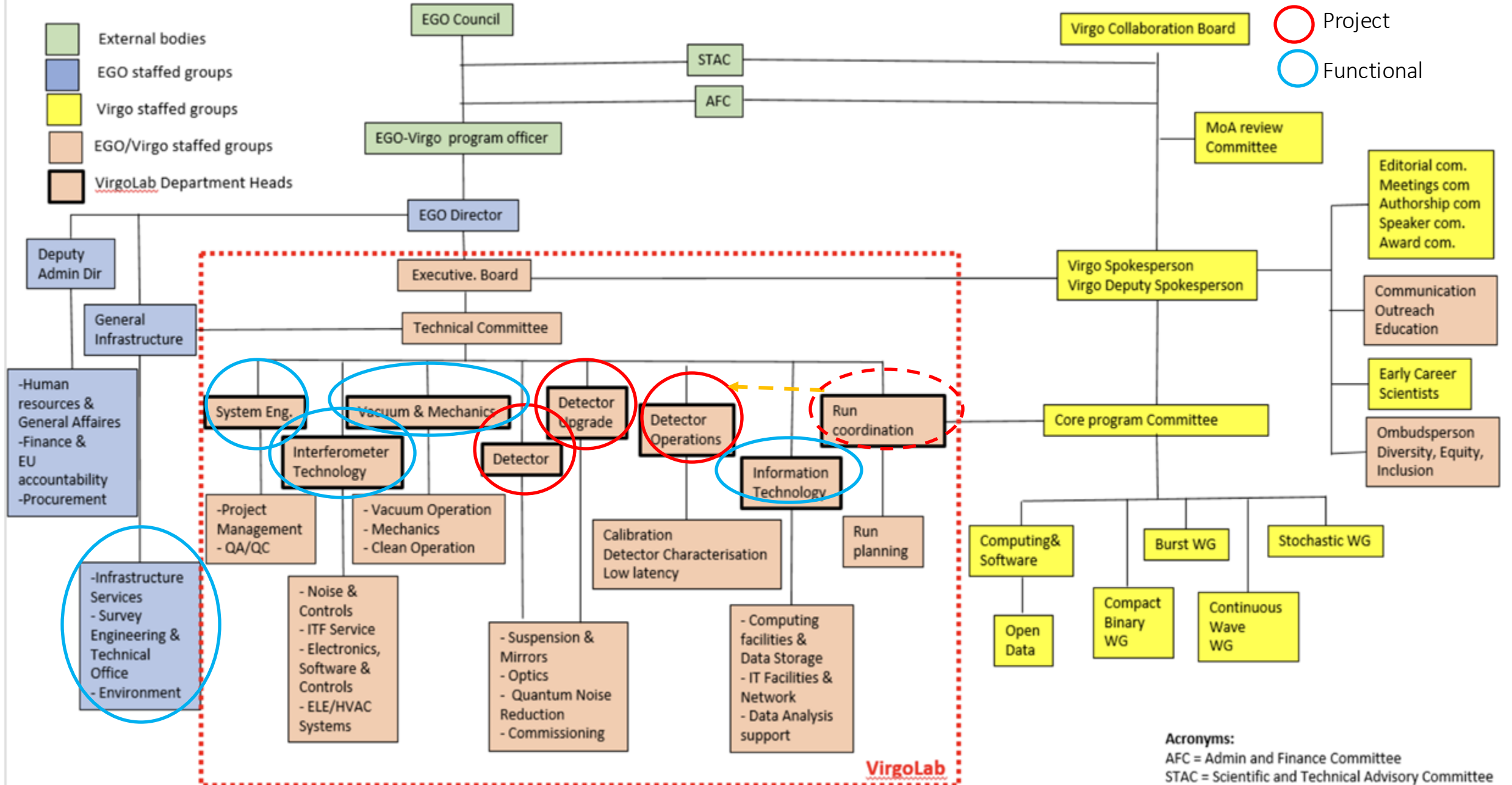
Problems With Matrix Organizations

- Failure to understand the key principles and roles in the more complex matrix organizational environment;
- Distrust in organizational forms which are not based on „unity of command“;
- Apprehensions of functional managers over the apparent superiority of the project goals over those of the functional entity;
- Senior management shortcomings in terms of clearly delineating in writing the formal and reciprocal roles of all the key managers involved in the project;
- Inadequate stakeholder management.

Proposal for the VirgoLab OrgChart

- The advantages of (strong) Matrix organization largely overcome the listed problems as long as senior management is well aware of them and they are properly dealt with
- On the next slides an attempt to adapt the VirgoLab org chart proposed by the review committee into a strong matrix organization by dealing with Detector Upgrade, Detector Operations and Commissioning as projects with the corresponding Coordinator as project manager.
- Note: For all personnel not employed by EGO there would be a 3rd dimension to be added to the matrix: the functional dependency from the external institution. This is ignored here with the idea that it could be managed via secondments to EGO or dedicated MoAs.

Identification of Functional and Project components in the original organigram proposal



Possible links between VirgoLab and IGWN

