France Grilles Operations Model

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1. Introduction

1.1. Purpose and scope of the document

This document presents how France Grilles operations are organized. It explains how NGI internal, national and international tasks are defined and how responsibilities are shared. **It is meant to be a reference document for France Grilles staff and partners.**

1.2. Motivations

Assessment of France-Grilles setup phase (May 2010 – February 2011) has highlighted the need for:

- A better representation of daily work
- A better clarification of responsibilities and tasks
- A sustainable model beyond the initial set-up of the French NGI

The initial motivation is not to propose abstract principles and enforce them but rather to describe what is – or should be – done, while allowing for best practices to be formalized and applied. This model is therefore built from bottom to top.

1.3. Proposed principles

We propose to decompose France Grilles Operations into:

- infrastructures (What are our tools)
- tasks (what do we do with them)
- roles (who does what)

This formalism should lead to the establishment of workflows representing the reality of daily work.

2. Infrastructures: what are our tools?

2.1. Our definition of "infrastructure"

Infrastructure is the basic physical and organizational structure needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function (source: Wikipedia). In the context of this document we call "infrastructure" a set of machines (hardware) and services (software) that are used together to answer to a specific need.

2.2. Foundation infrastructures

We call "foundation infrastructures" the infrastructures running grid middleware and that provide the base of the Grid, or emulate it for testing or training purposes. They are clearly identified as:

- **Production infrastructure**: the set of machines and services providing a production grid service;
- **Test infrastructure**: the set of machines and services providing a base for testing new resources, middleware and components;
- **Training infrastructure**: the set of machines and services providing a base for training new users and administrators alike;
- **Network infrastructure**: the set of machines and services providing the necessary network connections in order for the above to work.

2.3.Control infrastructures

We call "control infrastructures" the infrastructures built to operate, facilitate, control, supervise or assess the activity of the foundation infrastructures. They are identified as:

- **Monitoring infrastructure**: the set of machines and services for monitoring the status of resources and services from the foundation and control infrastructures; *e.g. nagios box*
- **Accounting infrastructure**: the set of machines and services for measuring and reporting the usage of resources from the foundation infrastructures; *e.g. national accounting DB*
- **Security infrastructure**: the set of machines and services for facilitating the enforcement of security policies and procedures on the foundation and control architectures; *e.g. national pakiti server*
- **Tools infrastructure**: the set of machines and services for facilitating operations, support and communication on and between the foundation and control architectures; *e.g. helpdesk, wiki, mailing lists*
- **Certification authority (CA) infrastructure**: the set of machines and services for providing users with credentials to use the foundation and control architectures. *e.g. CA servers*

2.4.Infrastructures: summary and overall view

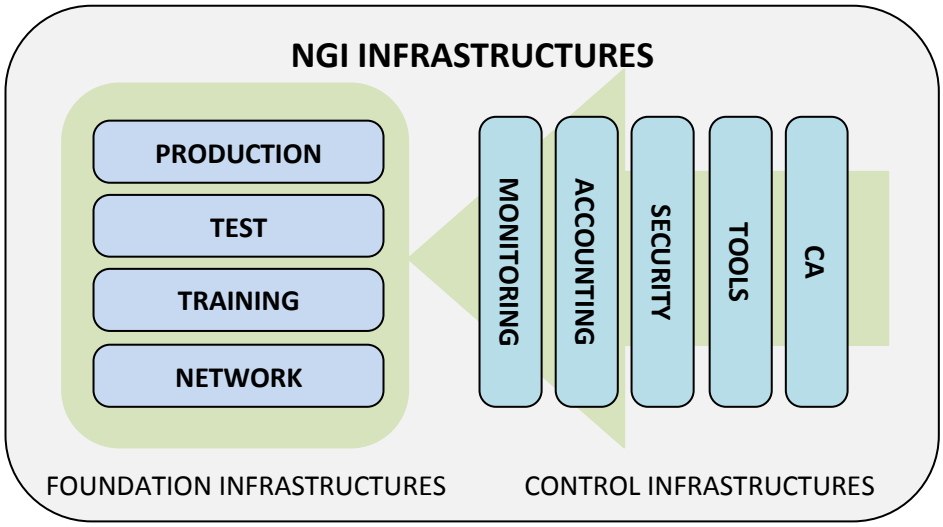

Fig.1: Representation of France Grilles Infrastructures

3. Tasks: what do we do with our tools?

3.1. Separation and grouping

There are many ways of logically separating and grouping tasks. The methodology we have chosen groups them:

- **Functionally:** tasks at the same level or within the same function will have similar types of responsibilities.
- **Thematically:** tasks in the same topic will have common high level objectives. They should lead to the establishment of communication workflows between the different responsible people.

3.2. Task levels and functions

3.2.1. Strategic coordination

This is the top coordination and supervision level that has responsibility for:

- The definition of strategies and long term plans
- Coordination with partners outside the scope of NGI operations (e.g. EGI, EMI, EUGridPMA…)
- Intra- and inter-activity coordination as well as coordination of infrastructure tasks
- The definition and exploitation of indicators and metrics for all activities

3.2.2. Technical supervision

The technical supervision level has responsibility for:

- The definition of technical plans to implement strategic plans
- The supervision of this implementation
- The establishment of indicators and metrics for the relevant activity
- Watch activity on technological evolutions

3.2.3. Implementation

The implementation level corresponds to the realization of the technical plans. This namely includes development, day-to-day operations and procedures.

3.2.4. Support and follow-up

The support and follow-up level has responsibility for:

- Following up incidents
- Providing expertise and support to sites and users

3.2.5. Service administration

Service administration tasks are linked to a given infrastructure. This corresponds to:

- Installation of the relevant software/middleware
- Configuration
- Regular service administration
- Software upgrade and maintenance

3.2.6. Service hosting

Service administration tasks are linked to a given infrastructure. This corresponds to:

- Machine installation,
- Hardware and system configuration
- System monitoring to ensure machine availability
- Hardware maintenance and upgrade

3.3.Tasks: summary and overall view

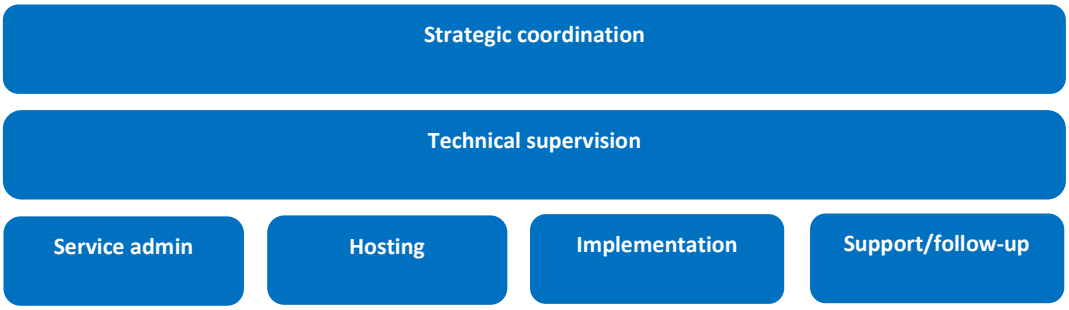

Fig.2: representation of France Grilles tasks

4. Roles: Who does what?

4.1.Roles definition

We define a role by a set of functions and a given level of responsibilities with regards to a specific task or set of tasks. **A given person can have many roles, and a given role can be taken by more than one person**. The following list of roles can be extracted from daily operations:

- Strategic coordinator
- Technical supervisor
- Developer/producer/executor
- Helper/Supporter
- Service administrator
- System administrator
- Technical Expert

4.2.Responsibilities associated to roles

There are different responsibilities associated to those roles. It should however be noted that **a hierarchy between roles and responsibilities doesn't mean a hierarchy between people**. The nature of the project split between different institutions, as well as daily operations which have shown that a given person often wears many hats, would render such a hierarchic model inapplicable, utterly counter-productive and totally inefficient.

4.2.1. Used formalism: RACI matrix

We propose to define responsibilities associated to roles for a given topic according to a formalism known as RACI: A Responsibility Assignment Matrix describes the participation by various roles in completing tasks or deliverables for a project or business process. It is especially useful in clarifying roles and responsibilities in cross-functional projects and processes. *(Source: Wikipedia)*

RACI is an acronym derived from the four key responsibilities most typically used:

- **Responsible**: Those who do the work to achieve the task.
- **Accountable** (also Approver or final Approving Authority): The one ultimately answerable for the correct and thorough completion of the deliverable or task, and the one from whom Responsible is delegated the work.

- **Consulted**: Those whose opinions are sought, typically subject matter experts
- **Informed**: Those who are kept up-to-date on progress, often only on completion of the task.

Even if daily work doesn't necessarily requires such a fine grained granularity, it is particularly important to define who ultimately holds those responsibilities with regards to a given task.

4.2.2. Functions/levels and roles : RACI matrix

We define responsibility assignment for all tasks as follows:

Task Level	Roles						
	strategic coordinator	*technical supervisor*	*developer/ producer*	*Helper/ supporter*	*service admin*	*system admin*	*technical expert*
Strategic coord.	R, A	C	I	I	I	I	C
Technical superv.	A	R	C, I	I	C, I	I	C
Implementation	I	A	R	C, I	C, I	C, I	C
Support/followup	I	A	C, I	R	C, I	C, I	C
service admin.	I	A	C, I	C, I	R	C, I	C
Service hosting	I	A	C, I	C, I	C, I	R	C

5. Workflows: How does that all work?

Once task levels and roles have been defined, different workflows can be established.

That needs to be done taking into account that:

- **Task definition for a given level falls under the responsibility of the level above**. In particular, the task of defining implementation, support, hosting and admin tasks for a given topic is in itself a "technical supervision" task.

- **Communication works in loops**. Whatever the level of a task, there is a need for communication to any other level e.g. a "strategic coordination" task often needs input from an implementation task.

- **Many tasks are interdependent**. Workflows and task dependencies are not tree-like structures, and an implementation task can be the result of different strategic tasks.

- **The model is applicable recursively**. A task at any given level can itself be decomposed into levels and so on. Needed granularity is a question of common sense.

- **Exact workflows can only be established on a case by case basis**. Tasks succession and interdependencies will vary from one topic to the other, especially with regards to what granularity is needed.

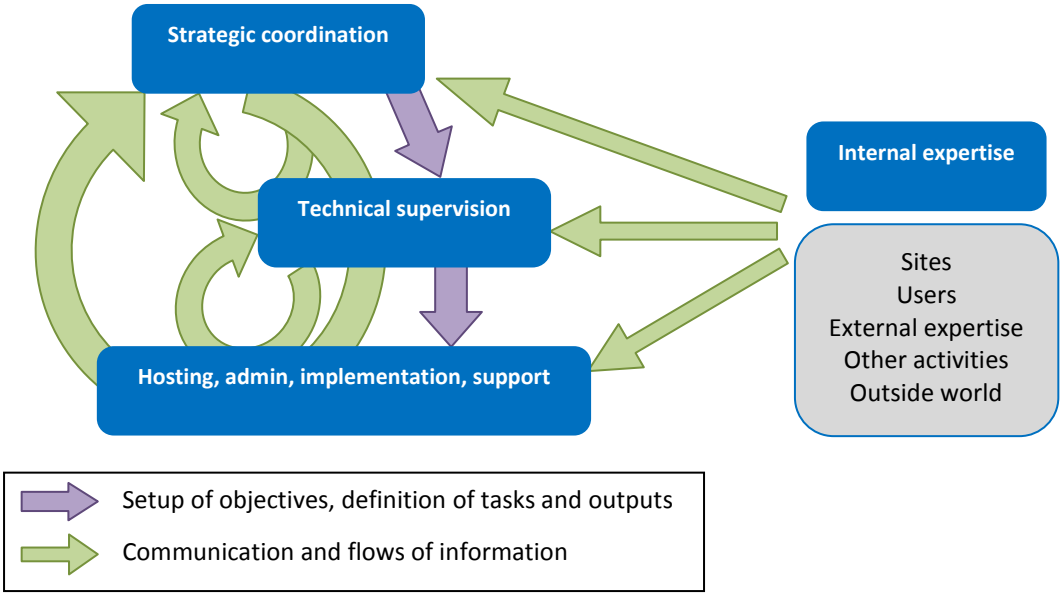

Fig.3: Responsibilities and flows

6. Overall view of the model

NGI operations provide services on top of infrastructures. Tasks are defined in its internal organization, ensuring the NGI can provide what is expected from it – both nationally and within the scope of EGI. Some of those tasks are dedicated to liaise with sites, VO/VRCs and Users, as well as with other NGI activities such as training and research grids.
Additionally, expertise and manpower are structured around the idea of roles and responsibilities, allowing for human resources to be efficiently used and key people to be involved at different levels.

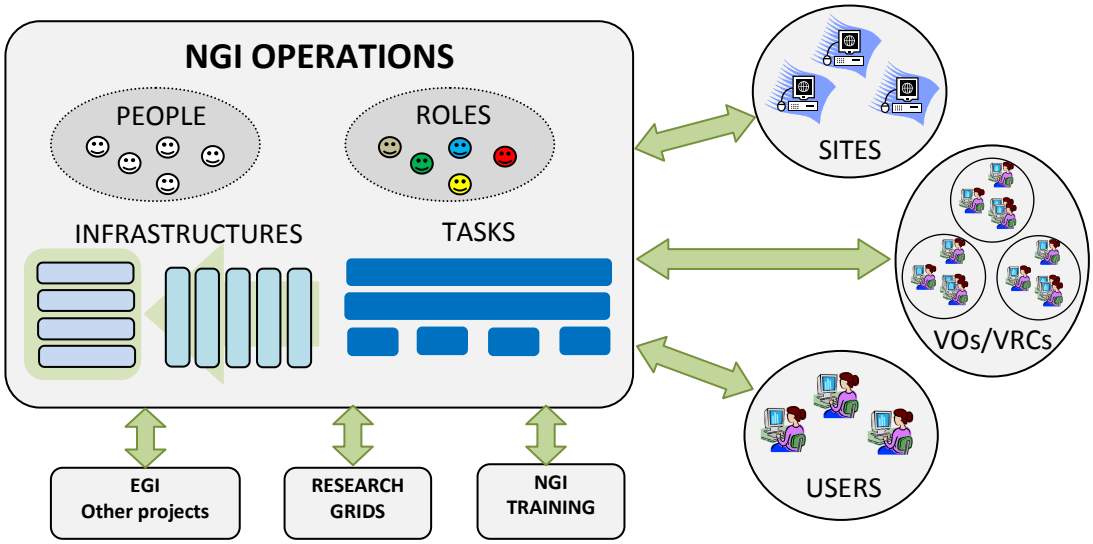

Fig.4: overall view of France Grilles operations in their context