Project Management Protocol of the Netherlands eScience Center

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Date: January 2025
Version: 3.5 (public edition of v3.0)

Date	version	Changes
1 June 2025	3.5 updates	??
1 December 2024	3.0 updates	Planning, Legal agreements, Project budget breakdown, change in the workshops and end report processes, open-access publications
1 October 2023	2.0 updates	DT and **PM** mandates, Roles of Directors, **PM** role in Ambition 2, SS, KD and external projects, Communications role, Editorial team, breakdown of hours, opportunities beyond project, Technology Status Report, End report
23 September 2022	1.0 initial version	

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1 Scope and definitions

1.1 Scope

This document is the official project management protocol for the Netherlands eScience Center. It describes all phases of a project and the procedures required to successfully complete them.

The scope of this document is the execution of research projects awarded by the eScience Center through calls for proposals, though other types of projects are also briefly covered. This document gives a detailed description of all steps, both required and optional, that must or may be taken in the execution of projects, reflecting the so-called *project life cycle*. For each step, the document clarifies the responsibilities of the project team members (RSEs) and other eScience Center employees (e.g. Programme Managers, **Finance**, Directors Team) involved in the process.

Call procedures are governed by a separate protocol [1] and fall outside the scope of this document. The call procedure protocol ends with the formal awarding of projects by the eScience Center Governing Board or the Directors Team (DT), the notification of Lead Applicants and the formalization of the awarding by means of a *toekenningsbrief* ('Awarding letter'). The current document covers all subsequent activities that (need to) take place after the awarding until the formal closing of the project. An independent evaluation of projects focused on impact, output, process, and collaboration with project partners, falls outside the scope of this document and will be addressed in a separate publication or a future revision. Tools and platforms used for project management (e.g. Ganttic, Exact) as well as standard techniques (cf. [2, 3, 4, 5, 6]), are only briefly referenced and are not described in detail in this protocol. This document has been approved by the DT and will be subject to evaluation and possible adaptation annually.

The structure of this document largely follows the project life cycle (see Section 1.4); the protocol describes activities in chronological order.

1.2 Stakeholders

An eScience project is a project involving the eScience Center, where responsibility is shared between different stakeholders who each have their own roles and responsibilities during specific phases of the project.

Stakeholder	Abbreviation	Assignment	Role	More info
Lead Applicant	LA	main applicant and recipient of the grant	primary contact for the eScience Center project, accountable for the (quality of the) scientific contribution to the project	responsibilities defined in the call text, Terms and Conditions, and possibly a Consortium/Collaboration agreement.
Programme Manager	**PM**	assigned by the **PM** team [1]	accountable for the eScience contribution, delivering results within scope, time, and budget; project budget holder	Full text of responsibilities available in the **PM** job profile document and **PM** mandate (see [7])
Lead Research Software Engineer	**Lead RSE**	appointed by accountable **PM**	responsible for the timely execution of the project, main contact person for the project with other stakeholders	More details on responsibilities, see the formal role description of **Lead RSE** (Appendix A).

Stakeholder	Abbreviation	Assignment	Role	More info
Research Software Engineer (assigned to a project)	RSE	assigned by the accountable **PM**	responsible for the timely completion of the project	Definition given in [8]. All RSE activities coordinated by **Lead RSE** in agreement with **PM**.
Consulting Research Software Engineer	Consulting RSE	involved at request of **Lead RSE** or accountable **PM**	provides expertise to the project for a defined period; may also join key meetings in addition to an expertise contribution	All activities coordinated by **Lead RSE** in agreement with **PM** in case the project team needs additional expertise.
Technology Lead.	**TL**	assigned by the **TL** team [2]	acts as point of contact for **Lead RSE** to the **TL** team. Safeguards the technological aspects of a project; accountable for the quality, reuse and sustainability of the research software developed.	The **TLs** team is responsible for internal training programme of RSEs.
Section Head	SH	assigned by the PM/SH team [3]	line manager of RSEs, responsible for monitoring the overall effectiveness of RSEs in bringing projects to completion; maintain overview of a research domain.	The SH team assigns one SH to each RSE team, and the SH ensures that team keeps its capacity and planning up to date.
Communications			advise and support internal and external project communication, including showcasing through news, website, newsletters, social media, interviews, and videos.	
Community Manager	CM		advise on developing outreach activities and promoting community engagement, responsible for external training programme	
Secretary			organizes formal meetings, provide with agenda and slide template, invitation text, list of participants (with emails), and timeline.	
Programme Director	PD		the escalation point for **PMs** and liaison to DT for project-related decisions; approves workshop plans (with **Finance**) and holds the Acquisition budget.	

Stakeholder	Abbreviation	Assignment	Role	More info
Director of Technology	DoT		the escalation point for **TLs**, the contact point of **TLs** to DT, accountable (and responsible) for licences and Intellectual Property (IP), software sustainability budgets holder	
Director of Operations	**DoO**		handles legal questions (e.g., contracts, Collaborative Agreements and guest agreements)	
Finance & Control	**Finance**	part of Operations, includes Controller, and led by **DoO**	responsible for maintaining finances and project administration	
Directors Team	DT	comprised of DoT, **DoO**, General Director and PD	approves formal decisions regarding projects (e.g., budget changes)	
GDPR contact person		appointed by the DT, see the Intranet for contact information	consults on GDPR/AVG [9, 10, 11] or privacy-related issues in the project	The eScience Center has not appointed a Data Protection Officer. GDPR aspects must be discussed with the contact person.
eScience Center project team	eScience project team	comprises RSEs, **PM** and **TL** working on the project	responsible for the timely completion of the project	
Project team		comprises the eScience project team, LA and their team (including team members indicated in the project proposal)	responsible for the timely completion of the project	
Editorial Team			provides support with outreach	The eScience Center maintains a blog, and has presence in major social networks

[1] All **PMs**, led by the Programme Director, constitute the **PM** team.
[2] All **TLs**, led by Director of Technology, constitute the **TL** team.
[3] All SHs, led by Executive Director, constitute the SH team.

1.3 Types of projects

The eScience Center receives an annual budget from NWO and SURF, the larger part of which is allocated to projects submitted by researchers working at eligible research performing organizations in the Netherlands in the form of the in-kind provision of RSEs. Projects may also be funded from external sources (henceforth referred to as *an external project)* or funded from the annual budget but carried out internally.

By awarding subsidy to a project or by pledging a contribution to an external project, the eScience Center takes on the obligation to deliver high-quality work in a timely manner.

1.3.1 Call projects

The eScience Center publishes a range of calls. Each project is a part of a specific call (regular calls such as OEC, SS, SSI, or calls in collaboration with other funders such as Big Data & Health, JCER, ESI-FAR). Projects from the regular calls before 2021 are partly in-cash, while projects awarded later are fully in-kind (plus a reserved budget for workshops).

Calls can reserve part of the project or the call budget to serve the eScience Center agenda to increase the impact of software beyond the project itself. Henceforth this will be referred to as the software sustainability budget, formerly known as generalization budget). The budget is intended for software generalization, reuse and sustainability, and community building. The DoT is the holder of this budget. Details concerning this budget are included in the Awarding letter. See Section 3.14.1 for more information.

Project teams (mainly **Lead RSE**, **PM** and **TL**) are expected to consult legal documents such as the specific call text, Awarding letter ('Toekenningsbrief'), Terms and Conditions document ('Bijzondere voorwaarden', 'Subsidieregeling', etc.), Consortium/Collaboration Agreement (CA), and/or contracts for grant terms and conditions. The LA is responsible for adhering to the conditions of the project, while the **PM**, with the help of the **Lead RSE**, monitors this.

In our call projects, most of the total requested budget is dedicated to project work and project-related activities. The remaining part (referred to as "general activities") covers activities that benefit our ability to contribute to high-quality research, such as the professional development of RSEs through training, work meetings, conferences, etc, as well as the administrative coordination and project management within the eScience Center. It is up to the **PMs** and RSEs in consultation with the SHs to fairly distribute hours for general activities across all the projects they contribute to (cf. Section 3.4). The exact percentage set aside for general activities is defined in the call within which a project has been awarded.

1.3.2 External projects

Projects funded externally by e.g. NWO or the EU, or via private-public partnerships, are governed by external funding conditions specified in a contract or agreement that may supersede our own rules. The LA is responsible for adherence to these rules and conditions, while the **Lead RSE** monitors this. Again, the project team (mostly, **Lead RSE**, **PM**, **TL**) must consult the specific call text and other formal documents (Awarding letter, Terms and Conditions document, Consortium/Collaboration Agreements, contracts for the conditions and rules). Projects under external funding are covered partially by this protocol. The formalities around the acquisition process follow the workflow described in "External funding" (see Section 3.14.3 for more information).

1.3.3 Other projects

This document only briefly covers other types of projects such as those funded through Ambition 2 [12], namely Dissemination & Community (D&C), Knowledge & Development (KD) and Fellowship projects in Section 3.14.4 and Appendix B.

1.4 Project life cycle overview

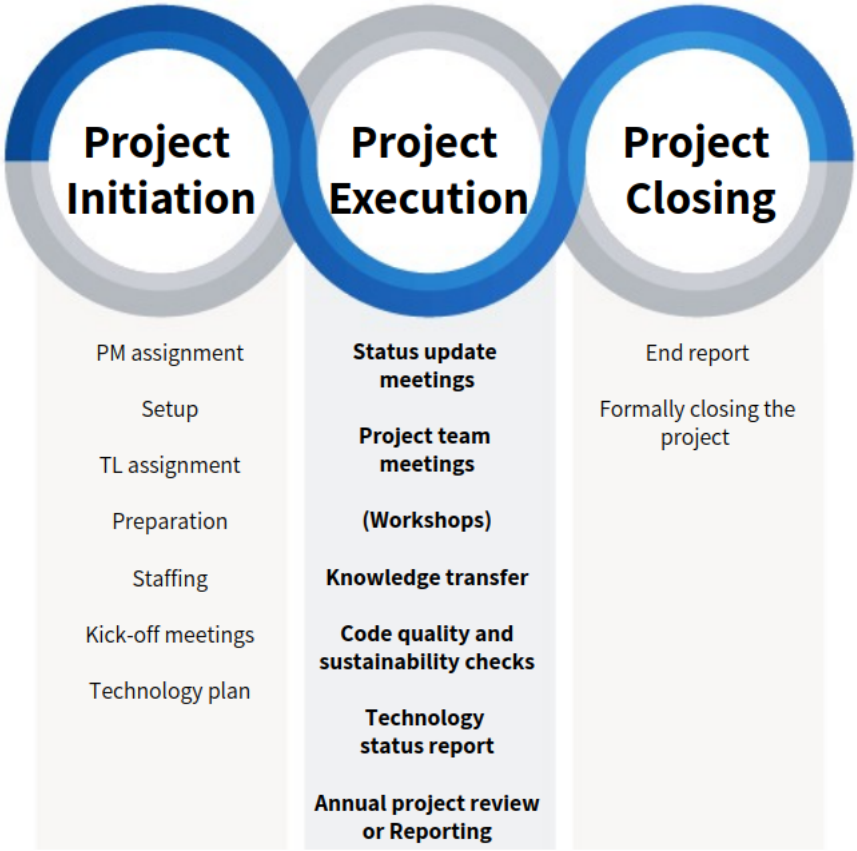

Figure 1: Project lifecycle stages

At the eScience Center, a standard project life cycle is a three-phase process (see Figure 1). First, project stakeholders initiate the project. Next, the project team executes the project and monitors its progress. Finally, once the project reaches its end, it is formally closed.

These three phases are covered in detail in the next sections.

2 Project Initiation

The project initiation phase starts immediately after the project has been granted. Its goal is to set up the project within the eScience Center, including a planning in terms of staffing and a work plan.

For call projects, **Finance** uses the grant package (see Table in Section 2.2) to initiate the project, activating it in Exact, thereby, enabling RSEs to write hours. For **external projects** and projects from special calls (e.g., collaborative calls), **Finance** make sure all paperwork (contracts, agreements, Memorandum of Understanding) is complete before project initiation. The PD updates **PMs** on funding applications, notifies **PMs** and **Finance** upon grant approval, and shares relevant documents (proposal, agreements, budget, etc.). When arranging legal paperwork, the eScience position on open science and open-source development must be considered (see Section 2.8).

2.1 PM assignment

Each project has one assigned **PM**. **PMs** are accountable for (call) projects. The **PM** team assigns **PMs** at the first meeting post-grant, records the assignment, and requests **Finance** to update Exact with the new budget holder. In case of no consensus, the PD decides as **PM** team chair. For the **external projects**, **PMs** assign a **PM** and **Lead RSE** to the project (i.e., the RSE involved in the submission procedure). The **Lead RSE** with the help of **DoO**, PD and the **PM** works with the project partners to get all paperwork in order (such as a subcontract), see Section 2.8.

Responsible: PM team.

2.2 Administrative Setup

The table offers an overview of the responsibilities of the different stakeholders in setting up a project:

Table 2:

What	By	Responsible for
Exact	**Finance**	• Creating project code, uploading grant package [a] • Requesting a missing start form from the LA • Making **PM** a budget holder.
Project portfolio	**Finance**	• Creating project portfolio folder [13] (with template subfolder & docs) • Uploading grant package, signed start form, and CA if applicable
Research Software Directory (RSD), project page and software pages	**PM**	• Creating an RSD project page (see [14], Appendix D). • Signalling requirements for corporate website to Communications • Copying (from the proposal) or asking LA to draft website summary • Selecting suitable image (e.g., from Shutterstock or Unsplash) • Giving **Lead RSE** maintainer access to RSD page
	Communications	• Advising on page content, editing summaries, and supporting with images
Corporate website	Communications	• Publishing content on corporate website using **PM**'s input • Promoting projects to stakeholders via news, newsletters, or social media
Ganttic	**PM**	• Checking if import project information from Exact is correct • Adding meta-info (labels, respective project URLs, etc.) • Planning RSEs, if applicable (e.g., for external projects)

[a] In this case, the proposal and all supporting documents submitted by the LA, Awarding letter.

For **external projects**, in particular, EU projects, PD and **DoO** make sure that the **Finance** and the **PM** have access to the project via the EU portal.

General status and progress are monitored by the accountable PM.

2.3 TL assignment

The **PM** asks the **TL** team to assign a **TL** to the project, providing all project information. The **TL** team does so at the **TL** meeting and informs the **PM** of their decision (by assigning **TL** to the project in Ganttic as well as a confirmation by email).

Responsible: TL team (at request of the PM).

2.4 Preparation by PM

The **PM** reviews the project proposal to identify key requirements:

- requested expertise: what eScience/technology expertise is needed and at what level? **Action**: In collaboration with the **TL**, the **PM** checks the skills survey for technological expertise required by the project.
- research goals: what are the main questions and goals? **Action: PM** consults senior domain experts and prepares project tags.
- workplan and feasibility: Is the proposed timeline realistic? **Action**: **PM** and **TL** assess feasibility in the context of the Technology Plan (Section 2.7).
- additional support: is other support needed (e.g., training, CMs, SURF)? **Action**: **PM** discusses this with the LA and **Lead RSE**. **PM** consults **TL** about management plans (see Section 3.6) and CMs about training workshops (see Section 3.7.2).

PM flags issues such as:

- GDPR: are personal data involved?
- IP/licensing: any deviations from standard licenses (Apache 2.0, CC BY 4.0)?
- Sustainability: is there a plan for long-term software maintenance?
- Ethical or other risks: Any sensitive aspects (e.g., military use, human/animal testing)? See also the final statements in the application form.

Depending on the issue, **PM** contacts relevant consultants (see Section 3.12).

PM records all relevant information in the project log (Section 3.1).

Responsible: accountable PM

2.5 Staffing

The **PM** assigns the project to a team [15] and appoints a **Lead RSE** in coordination with SHs and relevant budget holders. Staffing can be adjusted throughout the project as needed. The **PM** informs the LA of any changes involving the **Lead RSE** or **PM**; otherwise, the **Lead RSE** serves as the main contact.

2.5.1 Project vacancy announcement

Project vacancies are announced internally by the **accountable PM**. RSEs may express interest (also on behalf of their team) within the given timeframe, including a short motivation outlining relevant expertise and skills. The **PM** informs RSEs of the staffing outcome.

2.5.2 Assignment of RSEs

The **PM** assigns RSEs in consultation with the relevant SH, based on RSEs' expressions of interest, availability, technological skills, disciplinary match, and seniority and/or potential. If a team of RSEs is assigned to a project, the **PM** and the team agree as to which member(s) and in which capacity they work on the project, as described in 2.5.4.

The **Lead RSE** plays a leading role in the project execution phase. The **PM** consults the relevant SH regarding the professional and/or personal development needs of the **Lead RSE**.

2.5.3 Key stackholders availability

If the project cannot be staffed, the **PM** signals the vacancy to the respective SH and the **PM** representative in the hiring committee following rules described in the hiring process [7].

PM / TL availability If the **PM** or the **TL** becomes unavailable, their team appoints new one for the project. The PM/TL plans with **Lead RSE** any pending important milestone on the project (review meeting, code release, paper publication). The former **PM** informs LA of the changes and planning, and introduces the new **PM** in the email. The former **TL** informs the **PM** and the **Lead RSE** of the change.

Lead RSE availability If the **Lead RSE** has limited availability during the project for an extended period, this is signalled to the **PM** and the SH by the **Lead RSE**. The **PM** discusses with the SH whether the **Lead RSE** should be temporarily or permanently replaced. The eScience project team puts forward a candidate to take up the role of **Lead RSE**. The **PM** approves replacement of a **Lead RSE**, communicates the change to the LA (or Consortium for external projects) and includes both the former **Lead RSE** and the new **Lead RSE** in the correspondence.

The former **Lead RSE** ensures a proper knowledge transfer with the new **Lead RSE** and the **PM**, reporting and recording on the status of the project (current workplan, tasks, responsibilities of all project RSEs and the next steps in the project execution), ensures proper RSD pages handover.

LA availability For the case of the LA change, Section 3.13 describes overall procedure.

2.5.4 Project Planning

Project planning in Ganttic is used as an agreement between the **PMs** and the RSEs. RSEs are expected to adhere to the planning as agreed; if required, they can discuss and renegotiate the planning with the **PMs**. The **Lead RSE** is responsible for the planning of the project, following the rules described in "Project planning" [7].

2.6 Kick-off meetings

Once administration and staffing are finalized, the **PM** organizes two kick-off meetings: an administrative start meeting introducing the eScience Center and our way of working and a project kick-off, which is focused on the project research and workplan. The secretary can assist with organizing the meetings.

The **PM** archives the material used during the meeting and the meeting notes (from LA, **PM** or others) internally in the project portfolio folder.

The **PM** can combine the two meetings, if necessary, into a single workshop-style meeting. This applies in particular to specific categories of projects (e.g., based on a collaborative call, or an OpenSSI call). This is held at the eScience Center office, and a suitable room is arranged by the **PM**.

For **external projects**, the way kick-off meetings are arranged depends on the nature of the project. The **Lead RSE** attends all formal meetings of external projects. The **PM** joins these meetings if they deem this necessary. It is the responsibility of the **Lead RSE** to keep the **PM** in the loop.

2.6.1 Administrative start meeting

Scheduled:	Soon after awarding, but not before the Awarding letters have been sent and **Finance** has collected all the paperwork and put it in Exact and Project Portfolio).
Stakeholders:	**PM** (organizer, chair), LA, **Lead RSE** (optional). The **PM** can involve others at their discretion.
Purpose:	A procedural meeting to discuss how the cooperation on this project will be organized, administrative questions the LA may have, current availability of software and data, staffing, etc, so that problems can be caught early (e.g., licensing issues, no data, etc.).
Duration:	1.5 hours
Location:	At the eScience Center (preferably), but can be also online.

For this meeting, the **PM** uses the administrative presentation [13], ensuring that information is in the line with the call text, and current Terms, IP policies, etc.

The meeting covers the following topics:

- The eScience Center Introduction (mission, structure)
- Working with the eScience Center (calls, different eScience stakeholders, guest status)
- Project life cycle and SURF support
- Community and impact (RSD, digital skills programme)
- Intellectual Property, Software Licenses as well as publication protocol
- Project needs and expertise.

The **PM** logs the agreements reached in the slides or the project log (Section 3.1). The **PM** updates the project log with the meeting date, stakeholders present and (link to) the agreements. The **PM** and LA share slides with each other and the **PM** stores both slide decks (from **PM** and LA) and agreements in the project portfolio.

Scheduled:	Around the date indicated by LA in the start form, after the administrative start meeting.
Stakeholders:	**PM** (organizer, chair), the entire project team, **TL**, and other relevant stakeholders (e.g., SH)
Purpose:	The project kick-off focuses on the execution of the project, on the technological requirements, scientific challenges, relevant communities, project goals and outputs.
Duration:	Max. 1.5 hours
Location:	At the eScience Center office or at the institute of the LA [4]

2.6.2 Project Kick-off

[4]

For this meeting the standard agenda is:

- Round of introductions (the entire project team) (10 min)
- Project introduction and goals by LA (20 min)
- Discussion on the workplan and any updates needed by the project team (30 min)
  - eScience team explains the purpose of the technology plan
  - Project team in agreement with the **PM** and **TL**, decides when the technology plan should be submitted
- Roles of the project team members in carrying out the project workplan (10 min)
- (Updates to) Software Management Plan (SMP) and Data Management Plan (DMP) (5 min)
- Agreements on initial project planning and deliverables (with concrete action points) (10 min)
- Agreements on collaboration (e.g. frequency and location of project team meetings, planning days to work together and location)
- Any other business (5 min).

A workplan should always include a clear set of steps, divided into work packages, a detailed and realistic schedule, a list of deliverables and management plans (see details in Section 3.6).

The licensing of software is discussed at the project admin meeting and if needed, the project kickoff. If the proposed plan for a project does not fully match the IP policy, the **PM** must ensure a document is written (ideally by the LA or **Lead RSE**) with the proposed exceptions. **TL** reviews the exception document and provides input. The **PM** formally approve the IP exceptions document taking the input of the **TL** into account. The IP exceptions document is archived in the project portfolio folder along with other formal documents. The **PM** notifies all RSEs working on a project of the exception such that they can take this into account while working on the project.

In agreement with the project team, the **Lead RSE** prepares the project for the code development (see details in Section 3.8.1). **PM** logs the agreements, asks LA for the slides, and archives all of it in the project portfolio.

2.7 Technology plan

Every research project starts with a review of existing literature and technologies, and an eScience project is no exception. To that end, the **Lead RSE** should write down a technology plan for the project before executing it. The starting point of a technology plan is the eScience section, the workplan and the timeline of the project proposal as well as agreements from the kick-off meeting.

The project team submits a technology plan by the date agreed during the project kick-off, describing

[4] Mandatory participants of a meeting be present in-person at the office, while all optional participants can also participate via video conferencing if they prefer.

- available technology options, selected tools for the project, and the rationale for their use
- the technological outcomes of the project (software and data)
- steps to be taken regarding reusability and adoptability, etc.

The technology plan outlines key choices such as programming languages and quality standards. It serves as a living document, capturing technical decisions and ensuring optimal use of in-house expertise. An example can be found in [16].

Written by:	**Lead RSE**, in collaboration with project team (including LA, **TL**), CMs, and others RSEs or colleagues (e.g. with relevant expertise on the subject), or relevant SIG.
Target audience:	Project team, **TLs**, **PMs**
Schedule:	• written at the start of the project work, before any software development starts, • submitted to PM/TL by email before the deadline agreed during the project kick-off, • as a part of the project log (either full document in the log or a URL to it).
Approved by:	**PM** after due consultation of **TL**.

The **Lead RSE** is encouraged to consult colleagues with relevant expertise when drafting the technology plan. CMs can advise on engaging the target audience for software reuse and adoption. Since **TLs** are accountable for safeguarding the suitable technology in the project, the involvement of the **TL** in writing the technology plan is important. Therefore, the **PM** must consult the **TL** on the technology plan, submitted by the **Lead RSE** before any technological decisions are made in the project.

Once the **TL** approves the technology plan (via email), the project team updates the management plans if needed. The **Lead RSE** logs key decisions (see Section 3.1) and, if necessary, archives related emails in the project portfolio. Any updates to the plan during the project should be appended to the original, with an explanation of the changes. This ensures continuity, documents lessons learned, and supports knowledge transfer if team changes occur. Plan updates are reviewed during the status update meetings (Section 3.2)..

2.8 Legal agreements

The eScience Center promotes open, reproducible science and open-source development. The call projects are awarded under our Terms and Conditions [17]. The default university agreement templates often include IP clauses that conflict with these terms. Regardless of the type of the project, RSEs must not sign any formal agreements without consulting the **PM**. Such documents include but are not limited to:

- Guest agreement (to get guest status at the project partner organization)
- Data sharing agreement
- IP related document
- Consortium agreement
- Collaborative agreement
- Non-disclosure agreement

PM checks the draft agreement document and decides whether it can be signed and informs the RSE. If needed, the **PM** can consult PD. The RSE archives the final signed version of the agreement in the project portfolio.

PM and PD signal to the **DoO** if legal advice is required. In that case, any proposed contracts are sent to the **DoO** by the **PM** for final approval. The **DoO** shares the information within **Finance**.

The procedure for agreements regarding software licenses is described in Section 2.6.2.

3 Project execution

Projects at the eScience Center range from 3 months to 5 years in a duration, depending on the call through which they were granted. In all call projects, the **PM** (supported by **Lead RSE**) monitors progress and involves relevant stakeholders as needed. The **Lead RSE** takes a central role during the execution phase, ensuring regular team meetings – typically monthly for the full team (varies with team size) and bi-weekly with the LA LA and/or LA team.

From a technical project management perspective, an eScience project is a research process that requires a flexible execution plan rather than a one-size-fits-all approach. The team must adapt to unexpected challenges and deviations from initial plans, if necessary. Therefore, during execution phase, the **Lead RSE** and RSEs are encouraged to utilize diverse project management and communication methods, such as those mentioned in Section 1.1, including [5, 18, 19, 20, 21, 22].

3.1 Project logging

eScience project team members routinely log important project events and agreements. The project log is placed in the Project portfolio. The **Lead RSE** keeps the log up to date (see example in Appendix C). The project log facilitates the information flow between different stakeholders about project activities.

The following should be included in the project log:

- RSD project page URL (see instructions for the RSD page in Appendix D)
- key meetings with dates, links to slides, and decisions
- infrastructure used and decisions regarding infrastructure
- workshop/conference participation (or this is registered as an output in RSD)
- management plan updates
- technology plan decisions and updates
- (Code) review outcomes.

Links pointing to other documents (e.g., files in the Project portfolio, project output, repositories) should be used in the project log to improve readability of the log and avoid duplicate information.

3.2 Status update meetings

The **PM** stays informed about the status of the project and communicates with the **Lead RSE** on a regular basis.

Scheduled:	Once every 4-6 weeks
Stakeholders:	**PM** (organizer), **Lead RSE**, optionally: **TL** [5] , other RSEs.
Purpose:	Status update on the project and discussion around project management.
Duration:	30 min –- 1 hour
Location:	In-person meeting is default.

5

PM and **Lead RSE** discuss:

- project status (including any changes in a project workplan)

[5] The **TL** participation is mandatory for the techology-oriented projects.

- technological issues, with due consultation of **TL**, respective SIG, or other RSEs, if necessary
- changes in technology plan, technological choices (Section 2.7), management plans (Section 3.6). For any of these changes, **TL** presence is required
- synergies with other projects in the Center
- issues related to the budget, communication, staffing, etc.
- knowledge development and transfer, potential for software reuse, software sustainability.

The frequency and duration of these meetings are at the discretion of the **PM** and depend on factors such as the experience of the **Lead RSE** and the size of the team and/or the project.

In projects that have a stronger focus on technology (such as the eTEC, CIT, SS projects), the **TL** is involved in these meetings more frequently. For some projects, update meetings can be combined (e.g., for projects within the same Call) or organized in the context of a larger meeting (such as a SIG on a relevant topic). Together with the **Lead RSE**, the **PM** decides on the format of the status update meeting.

3.3 Project team meetings

To keep the entire project team informed on project progress, the **Lead RSE** together with the LA organizes a periodical project meeting. The frequency and format depend on the complexity of the project and size of the project team.

Scheduled:	Once every 2-6 weeks
Stakeholders:	**Lead RSE** or LA (organizer), LA (chair), RSEs and other project team members from the LA side.
Purpose:	Progress update on the project by all team members.
Duration:	30 min –- 1 hour
Location:	In-person meeting is default.

The agenda of this meeting should include:

- status update from all stakeholders
- discussion of scientific progress
- discussion of technological progress, issues and choices
- alignment of project progress with the project workplan, and adjustment of the latter, if necessary.

3.4 Writing hours and managing project budget

The **PM** and **Lead RSE** must have a firm grasp of the project budget and the project duration. This information is in the Awarding letter, the proposal and Exact.

The project execution phase roughly consists of three parts: exploration, development, sustaining. In call projects, the budget is roughly split as follows: 25% for exploration (including learning), 50% for development, and 25% for sustaining (including research and dissemination activities). The **Lead RSE** must consult the **PM** if project execution deviates from this plan. The left plot of Figure 2 assumes a constant budget spending rate. If possible, RSEs are encouraged to complete the first two phases faster, keeping the end date unchanged. This leaves more time for the sustaining phase (cf. Figure 2), which benefits outputs like publications. It also leads to more effective budget use under the current eScience Center financial system.

The LA and RSEs are free to spend the awarded hours ahead of the project end date. However, the **Lead RSE** is responsible for results being delivered on time for the project and not exceeding the budget, and timely informing the

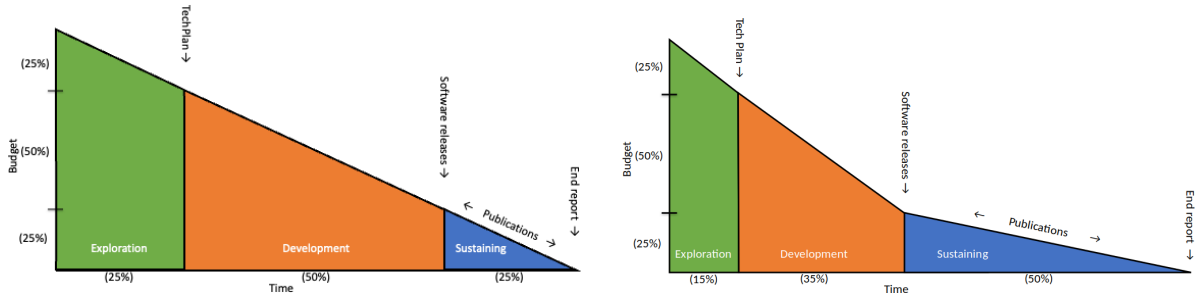

Figure 2: Project's budget breakdown: standard (left) and fast (right)

PM and the LA about any changes to the agreed planning. If a project budget is fully spent ahead of its schedule, the **PM** asks **Finance** to restrict writing on the project budget only to the **PM**.

The eScience project team (including **PM** and RSEs) must submit project hours in Exact by the end of each month. All entries must be completed within one working week after month-end. For regular call projects, RSEs can write hours once the project is active in Exact, typically within a month of grant approval. The **PM** records management hours on the project budget. Project hours are managed by different parties with different responsibilities:

Stakeholder	Responsibilities	More info
PM	• reviews and approves project hours by the 5th workday of the following month. • shares monthly hour status with RSEs via Ganttic • flags issues (e.g., incorrect budgets) to **Finance** • notifies **Finance** of budget changes.	
Lead RSE	• monitors project hour expenditure • signals deviation from the workplan to the **PM**	
Finance	• maintains accurate budget information • monitors and processes approved project hours • shares monthly financial info with budget holders (**PMs**). • recalculates project budget if extended past year threshold. • sets project to read-only if hours are depleted/exceeded early.	All budget changes require a formal decision (see 3.13).
DoT	• monitors and approves software sustainability hours	There is a separate protocol on handling software sustainability.

It is possible to travel for a project, however RSEs must ask approval of their line managers (a respective SH) before committing to an event requiring travel and fill out a travel form. See the Intranet for more information.

For **external projects**, only the **PM** and RSEs formally working on the project may write hours. Some projects (e.g., Horizon Europe) allow only direct project activities – non-project activities like SIG involvement cannot be charged on the project. The **Lead RSE** and **PM** must know these restrictions or consult **Finance** if unsure.

3.5 Workshops

Some call projects require the LA to organize workshops. These workshops aim at fostering research communities around the software developed in projects. Workshops may focus on early user feedback, new features, or connecting existing tools to broader communities. Based on the call text, the **PM** and **Lead RSE** determine whether one of more workshops must be organized. **Finance** provides the project's workshop budget status. There are two types of workshops, namely, (a) organised by the LA, and (b) organized by the Lorentz Center.

For workshops organized by the LA: the LA writes and submits the workshop plan(s) to **Finance** in a timely manner (see [13] for templates). **Finance** approves the plans in consultation with the PD and **PM**. The **Lead RSE** is expected to contribute to the workshop and its organization. A CM can advise the LA (through the **Lead RSE**) on fostering engagement and growth of relevant software communities; a CM is involved in the introductory part of the workshop, including addressing attendees. **Finance** handles the administrative and financial aspects of the request and requests feedback on the scientific content from the **PM** team.

For workshops organised by the Lorentz Center: the LA must apply through the Lorentz Center webpage. The LA has the leading role in the application. The **Lead RSE** takes an advisory role in the writing and design of the workshop proposal and is expected to actively participate during the workshop event. The **PM** must ensure enough hours are allocated for the **Lead RSE** (or RSE from the project team) to help the LA with the proposal and attend the workshop, if they want to take an active role.

These workshops differ from the eScience-Lorentz Center Competition workshops that are jointly funded by the eScience and the Lorentz Center. Besides co-funding expenses, the eScience Center provides an additional in-kind support. The role of the eScience RSEs is described in the awarded proposals. The project initiation and the eScience team assignment follow the usual process. The team collaborates with the organizers on planning and outcome of the workshop (e.g. research paper, white paper, software release, or grant consortia). The **Lead RSE** plays a pivotal role in preparing and delivering the workshop, and, possibly, in publishing any outcome drafted during the event.

3.6 Data and Software Management Plans

For some projects, Data and Software Management Plans (DMP [23] and SMP [24]) outline how project data and software are maintained. Depending on the call, the LA must submit complete DMP and SMP documents within 6 months of the project. The **Lead RSE** may assist in drafting the DMP, which the LA submits to the **PM**, who asks a **TL** for review and approval. For call projects since 2021, SMPs are included in project proposals.

The LA is responsible for keeping both plans up to date and must inform the **PM** and **TL** of changes via the **Lead RSE**. The **PM** may request updates as needed, with support from the **Lead RSE**.

3.7 Knowledge transfer

To increase visibility of the project and its results, the project team (including RSEs, **PM**, **TL**), Communications, CMs, share knowledge and outcomes both inside and outside of the organization. The **Lead RSE** ensures that

- project results are timely shared with Communications, CMs, and relevant SH;
- project and software pages on the RSD are properly updated; and
- specific requests to facilitate project visibility are sent to Communications by RSEs.

Moreover, **PMs**, Lead RSEs and **TLs** work together to spot opportunities for cross project collaboration (e.g., by reusing software or knowledge in these projects or as a new reusability project, read more in Section 3.14.1).

3.7.1 Output management

Project deliverables include research articles, presentations, talks, posters, tutorials, datasets, blog posts, white papers, and workshops, as well as software-related outputs such as code releases, software papers, demos, videos, tutorials, and training materials. RSEs strive to apply FAIR principles [25, 26] to all project deliverables. They should have

- (concept) DOIs from publishers or open-access archives like Zenodo, arXiv, or DANS;

- acknowledge the eScience Center project grant [6]; and
- listed RSEs working on the project as (co-)authors.

RSEs must record all project outputs in relevant systems and databases (see Table 3) to ensure knowledge transfer. The **PM** expects the team to follow the deliverables plan outlined in the proposal and workplan. RSEs contribute to publications and software/data releases.

Table 3: Output management

What	Responsibility of	Responsible for	URL	Additional info
Zenodo (NLeSC community)	**PM** / CMs	curating and approving new publications	Zenodo link	• Publications on Zenodo are added to the community
	RSEs	getting a (concept) DOI for a data or software release, or a document (e.g., non-peer-reviewed publications)		
RSD, software and project pages	**PM** / **Lead RSE**	• ensure the eScience team has maintainer access • decide on reuse of the project page if the project continues under new funding.	See [14]	See Appendix D
	RSEs	• create project page, if needed • maintain pages with complete, up-to-date metadata		
Project portfolio	**PM**	adding a direct link to the project portfolio in Ganttic	cf. [13] for structure explanation.	An internal archive with regular automatic backups. Direct link to the portfolio folder available in Ganttic
	Lead RSE	ensuring that all docs are available		
	RSE	• upload outputs (e.g., papers, reports, presentations) • link the source material in the project log		
The eScience Center blog	RSEs	• Create a blog post about the project, its progress, or outcomes. • add final blog URL to project RSD page	Indexed at eScience Blog	Instructions on blogging are posted on the Intranet [7]
	Editorial Team	• Review blog post entry of project team • Help at any stage with writing and publishing process		

Open access publications and open source software are mandatory for all call projects. The **PM** and **Lead RSE** inform the LA if needed. Open access fees are budgeted by **Finance** annually in the call budget (with the PD approval); if no budget is available, alternatives can be explored:

- publishing through the LA's institution (either open access funds are available or the LA organization is connected to publish open access in a lot of journals through the library without a fee)
- choosing the best option for open-access publishing (is it a diamond or gold open-access journal)

[6] By adding the following sentence into the publication: "<full project title> is a project of the Netherlands eScience Center, funded under grant number <grantid>."

- publishing closed access and self-archiving either a preprint or publication after six months under Taverne agreement in Dutch copyright law (cf. [27, 28]).

The **Lead RSE** and **PM** consult **Finance** regarding payments for an open access publication.

For **external projects** the expected deliverables are also part of the formal project documents (proposal, contract, etc. The **Lead RSE** is expected to keep the **PM** informed of the status of deliverables throughout the project.

3.7.2 Outreach

The **Lead RSE** promotes the project's visibility through project demonstrators, presentations, and other means. All RSEs are expected to communicate externally about the project and its deliverables, as outlined in Section 3.7.1. Communications supports the project team by highlighting project through various channels, including but not limited to news items, social media posts, videos and interviews about relevant the scientific impact of the research software developed or used. The **Lead RSE** (or occasionally the **PM**) provides Communications with relevant information.

Blog posts are an optional but highly recommended output of the projects. Any team member, from LA to RSE, can author them. Topics may include simplified research summaries, tutorials on learned skills or technologies, or updates on workshops, publications, and other project outputs.

RSEs share project progress and results (e.g., technology plan, milestones, code releases) with colleagues, including SIG presentations. Each RSE prepares and updates a 3-slide deck or pitch [13]. The **Lead RSE** ensures a demonstrator is available after the first major software release.

The LA and their team are encouraged to participate in relevant Digital Skills Workshops [29] from the eScience Center. Furthermore, if the LA and their team require a project-specific training workshop, the **Lead RSE** involves

- workshop coordination with CMs, who can advise on organization and training material development; **Finance** handles any related payments if applicable;
- the **PM** discusses RSE hours spent on training organization and consults **Finance** if needed.

For **external projects**, consortium agreements (e.g., Non-Disclosure Agreement or NDA) may define result communication. The **Lead RSE** and **PM** review these at project start to clarify communication boundaries.

3.8 Code quality and sustainability checks

Ensuring software quality and sustainability is integral to the code development process cycle at the eScience Center. All RSEs are expected to follow our software development guide and best practices [30]. Code should be designed to be as generic and reusable as possible from the start.

3.8.1 Code development

At the initial stage of code development in the project, the **Lead RSE** together with RSEs:

- set up a GitHub organization for the project, following the eScience Center Guide and the Turing Way [5]
- add the URL of this organization to the RSD project page.

RSEs must always ask at least one project team member, relevant SIG member or other RSE at the eScience Center to review, comment and approve pull requests in the project codebase.

3.8.2 Code review

As part of the annual review (see Section 3.9), a code review is organized by the **Lead RSE**. Depending on the project it could take the form of a reusabilithon[7], a review of code on GitHub, or something else entirely (format to be approved by **TL**). The reviewers for this process are typically other RSEs at the eScience Center.

The goal is to review software of the project for:

- its usability (reproducing steps of installations, and running it on a machine/laptop)
- overall software quality and suitability
- whenever appropriate, correctness of code
- adherence to the technology plan (Section 2.7)
- adherence to eScience Center best practices
- opportunities for reuse of software in other projects
- correct inclusion in output systems (Section 3.7.1).

Reviewers make written suggestions for improvements, and flag major issues encountered. These issues serve as input for the **TL** for the formal annual review meeting (see Section 3.9). These notes are stored in the project log.

3.9 Annual project review meeting

Scheduled:	Yearly
Stakeholders:	**PM** (organizer, chair), **Lead RSE**, LA, **TL**, optional: other project team members, SH
Purpose:	• to ensure that the project is still on track • to discuss any persistent issues to ensure optimal collaboration between project team • to explore opportunities beyond the project
Outcomes/Actions:	List of agreed actions and PM/TL advice for next steps.
Duration:	Max 1.5 hours
Location:	At the eScience Center or the project location [4]

For call projects longer than one year, the **PM** organizes annual reviews. The details are described in the terms and conditions document [17]. For one-year projects, review meetings are optional and decided by the **PM** in consultation with the **TL** and **Lead RSE**.

Each review includes discussion and actions on reusability and sustainability of project results (as described in the DMP and SMP), status of collaboration, and follow-up opportunities. The agenda of this meeting is:

- introduction and purpose of meeting
- scientific goals status (the LA and team)
- project output status (the project team)
- collaboration status (including hours admin and bottlenecks)
- use of digital infrastructure and SURF support (if applicable)

[7] Coined by the Software Sustainability SIG, the term refers to a 2-3 hour session where a group of RSEs evaluates a piece of software for usability, provides feedback to the developers, and formulates recommendations to improve its (re)usability.

- next steps and future opportunities.

For **external projects**, review meetings are typically part of the project process. The **PM**, with the **Lead RSE**, decides if a (lightweight) internal review is needed.

3.9.1 Review meeting preparation

	Stakeholder
Prepared by:	LA and **Lead RSE**, with optional input from other stakeholders.
Reviewed by:	**PM** accountable for project, **TL** accountable for technology.
Target audience:	**PMs**, **TLs**, SHs and RSEs.

The **Lead RSE** coordinates preparations for the review meeting:

- request the **PM** to share the standard review meeting slide template [13] with the LA team
- requests project team members to contribute to the review meeting slides, wherever appropriate,
- compiles technology status report (see Section 3.9.2).

LA and **Lead RSE** jointly prepare the slides:

- 3-5 slides summarizing progress toward research goals. The LA is not expected to present published content or the original workplan or proposal. If applicable, the LA reports on workshops.
- 1-2 slides on the technology plan status, including reuse, adoption, and sustainability, supporting the technology status report.
- highlight any scientific or technical bottlenecks and assess if the project is on track or needs replanning;
- the **PM** reports on the RSE hour status (i.e. the number of hours already spent); and
- the project team provides a feedback on collaboration and suggest improvements if needed.

Additionally, the **Lead RSE**:

- together with the LA, ensures all output is properly registered (see Section 3.7.1), and adds missing URLs/DOIs to the slides;
- coordinates with the team to finalize the presentation at least 2 working days before the review meeting;
- uploads the slides to the project portfolio; and
- informs **PM** and **TL** that slides are ready and are in the project portfolio.

3.9.2 Technology status report

Prior to the annual review meeting, the **PM** asks **Lead RSE** to fill in the technology status report. This report summarizes the technical progress of the project and includes RSD project page with its deliverables, URLs to project plans, software quality and community involvement. The **Lead RSE** prepares it in collaboration with the project team; it serves as input for the **TL** during the review.

The **Lead RSE**:

- collects output and relevant information from LA and team

- meets with CM to draft the technology status report
- draft the rest of the report with the **TL**

Two weeks prior to the review meeting, the **Lead RSE** submits the completed report to the **TL**. The **TL** conducts a code review or software health check based on the report and shares the results with the eScience team. If needed, the **Lead RSE**, **TL**, and **PM** may meet to discuss the findings before the annual review meeting.

The report and the review(s) are archived by the **TL** in the project portfolio.

3.9.3 At the review meeting

The time breakdown of the meeting agenda is follows:

- presentation by the LA (max. 20 min)
- presentation by the **Lead RSE** (max. 20 min), including the RSE roles and deliverables
- discussion (max. 40 min)
- summary, action points and conclusions.

The **PM** chairs the meeting and, with the **TL**, acts as reviewer. The **TL** highlights tech/software issues. Everyone contributes to the discussion. **PM** and **TL** assess deliverables, and comment on their status:

- have the objectives outlined in the proposal been sufficiently addressed? (**PM**)
- does the project follow the workplan in terms of deliverables? (**PM**)
- has the output been registered according to the rules of output management (Section 3.7.1)? (**PM**, **TL**)
- does all project output have publications (including software and data papers)? (**PM**)
- are there any issues flagged during the code review that needs to be discussed with the project team? (**TL**)
- does the project team sufficiently engage and align with relevant communities (e.g., via the workshops)? (**PM**)
- does the project adhere to the technology plan, SMP and DMP? (**TL**)

The eScience project team comments on any further possibilities for reusability, adoptability and sustainability of the software, and the project team comments on possible collaborations beyond the project.

The **PM** updates the slides with action points, agreements and plans (with the project partners agreement). The **PM** logs the meeting in the project log.

3.9.4 After the review meeting

PM shares the updated slide deck with the project team members to check the agreements written down. **PM** ensures that the final version of the presentation(s) uploaded to the project portfolio is correct.

3.10 Reporting

For call projects the annual review meeting and end report (Section 4) serve as formal progress reports.

External projects may require periodic reporting to the consortium on progress and deliverables. The **PM** and **Lead RSE** consult the agreements, contract, and workplan; **Finance** handles financial input. The external coordinator (e.g., EU project coordinator, NWO programme officer) signals deadlines on the report delivery. The **Lead RSE** drafts the eScience Center's contribution, the **PM** reviews it. **Finance** fills in the financial part of the report (signed by the **DoO** if needed). The **PM** submits the final report to the external project coordinator (via EU portal done by **Finance**) and archives it in the project portfolio.

3.11 Conflict resolution and complaint procedure

The eScience Center adheres to the Code of Conduct outlined in the Personnel Policy (cf. [31]). Conflicts involving eScience and the LA team on the projects should be addressed using this four-step process:

1. The **Lead RSE** first seeks resolution with the LA; the **PM** may be consulted or join in discussion if needed.
2. If unresolved, the issue is escalated to the **PM** (via the **Lead RSE**), who organizes a meeting to mediate.
3. Persistent issues can be escalated to the PD via a written summary submitted through the **PM**.
4. The PD may escalate to the DT if necessary.

If the issue concerns the **PM**, RSEs may escalate to their manager (SH). An external confidential advisor ('Vertrouwenspersoon') is also available for anonymous support [7]. Conflict resolution may lead to project adjustments, such as staffing changes (cf. Section 2.5).

3.12 Non-RSE Consultants

Certain issues require consultation beyond the project team. Team members must inform the **PM**, who may delegate actions as needed:

- GDPR/personal data: consult the GDPR contact [7].
- Software/data quality and access: contact the **TL**.
- Scientific integrity: contact the integrity officer [7].
- SURF-related matters: contact SURF liaisons [7].
- Sustainability: contact **TL** and CMs.
- IP/licensing: contact **TLs** and DoT. (cf. Section 2.6.2).
- Legal matters: contact the **DoO** (cf. Section 2.8).
- External funding/opportunities: contact the PD (cf. Section 3.14.3).

3.13 Changes to the project

During the project life cycle, the workplan may change substantially:

- New deliverables because of additional funding
- New workplan because of changes in the research goal and/or in the technology used
- Timeline, leading to a different end date.

Any of these changes needs explicit approval from the **PM** team or the DT.

Type of request	**Decided by:**
Budget requests within the **PM** mandate [7]	**PM** team
All requests regarding budget changes outside the **PM** mandate	DT (via PD)
Early termination	DT (and DT informs the Board)

For **external projects**, changes must follow the formal agreements (e.g., grant or consortium agreement). The **PM** handles extensions within their mandate or escalates to the DT. The **PM** informs the external funder or consortium of the outcome.

3.13.1 Proposal changes request

The LA must submit a formal request to the **PM** team (by email via the **PM**, in PDF format, signed) containing:

- project title and project number
- requested change (e.g., time/dates, RSE hours, scientific goal) and motivation for this change
- conditions such as deliverables: any new deliverables should have updated timeline. If none, state explicitly.
- any motivated budget change, such as
  - LA wants to increase their involvement
  - change in research personnel (if applicable in the case of older projects)
  - transfer between hardware and PYR for RSE or LA personnel costs (if applicable, for older projects)
  - any in-kind to cash change, or vice versa (including requests with the extra cash budget from the LA).
- any prior or planned inactivity on the project, such as
  - personnel shortage on the LA side due to maternity/sick leave or hiring delays (but there is a concise timeline on the hiring procedure)
  - unavailability of RSEs
  - additional data that needs to be collected.
- any delay with the start date.

3.13.2 Processing the changes request and decision

Upon receipt of the request, the **PM** assesses if the request should be granted based on considerations such as

- whether the new objective is scientifically promising or technologically interesting? (if applicable)
- collaboration status with the LA;
- prior problems regarding the project;
- benefits for the eScience Center (e.g., smooth wrap-up, future funding opportunity); and/or
- availability of RSEs with relevant expertise to work on it.

The **PM** can consult with RSEs and the **TL** on whether the new planning is feasible, and with **Finance** for a budget remaining after necessary recalculation. In case of additional funding, the DT (via the PD) will decide, after a budget calculation by the **Finance** and approval by the **DoO**. Otherwise, the **PM** puts the request on the agenda for the next **PM** meeting, containing:

- the motivated request (uploaded to the project portfolio
- the recommended action
- the prepared decision on the **PM** meeting agenda.

The **PM** team may request more information from the LA via the **PM** (and thus postpone the decision on the request). The LA can provide the new information via an additional PDF signed letter or as amendment to the original letter.

After the final decision, the **PM** notes the official decision in the decision document. If the request is not approved, the **PM** communicates this to the LA. If the request is approved, the **PM**

- coordinates with **Finance** to finalize the extension (budget/Exact update, extension letter, LA communication);

- communicates the extension to the **Lead RSE**.

The **Lead RSE** then

- communicates the extension to the project team;
- updates planning and adjusts staffing, if necessary;
- ensures website and RSD are updated (e.g., if dates or affiliation changed); and

If the request involves a DT decision, the **PM** submits a request formally through the PD.

3.13.3 Early project termination

Early project termination may occur by mutual agreement, or be initiated by the LA or the eScience Center. In the first two cases, the LA submits a signed letter (via the **PM**) to the DT, requesting project termination, explaining the situation and proposing how to handle remaining project resources (e.g., RSE hours, cash contribution, FTE commitment of the LA, workshops, sustainability budget).

The **PM** may request project termination if the LA or project partners violate the terms of Awarding Letter or Special conditions ("Bijzondere Voorwaarden"). The **PM** submits a letter with the explanation to the DT via the PD. If approved, the **PM** informs **Finance**, which finalizes the process (by making changes in Exact and preparing a termination letter).

3.14 Opportunities beyond the project

A project team can explore different opportunities for ideas that stem from the project that go beyond its scope and/or budget. Appendix B summarizes the role of **PM** in such projects. The **PM** discusses these opportunities with the project team during the review meeting.

3.14.1 Increasing reusability (in this document called software sustainability)

Some projects or calls have dedicated software sustainability budgets [32]. Until 2020, each project received its own Generalization ("Generalisatie") budget for reuse of project results. Since 2020, this budget is allocated at the programme or call level. The **PM** and **Lead RSE** must check the call text, awarding letter to confirm its availability.

The **PM** signals potential for reuse to the **TL**, who discusses it with the **Lead RSE** and, if needed, the **TL** team. RSEs with ideas for sustainability projects can contact the **TL** or DoT. The process follows the SS protocol [7].

3.14.2 Knowledge and Development

For the development of broad and deep knowledge on digital technologies and their application, RSEs can apply for so-called Knowledge and Development (KD) project. The process is described by the KD protocol [7].

3.14.3 External funding

The project team may decide to pursue other funding opportunities. The eScience Center encourages RSEs to pursue external funding opportunities to promote the organization profile as research organization. PD oversees the Acquisition activities and the process. The relevant information is available via Intranet [7].

3.14.4 Fellowship

To stimulate community engagement lasting longer than project lifetime, the eScience Center funds annual Fellowship Program [33, 34]. The eScience project team is not eligible for this program, however, the LA and their team are.

4 Project closing

Project closing is the final phase of a project. In this phase the **Lead RSE** requests and previews the end report, the **PM** (with the help of **Finance**) processes the end report and accepts the project deliverables. Once the project is formally closed, RSEs can no longer write hours or work on this project.

4.1 Handling end report

All completed call projects at the eScience Center must have an end project report.

Written by:	the LA, assisted by the **Lead RSE**.
Target audience:	**PMs**, RSEs, Communications (layman summary), **Finance** (accountants), **TLs**
Schedule:	• written in last months of the project, • submitted 3 months after the project end at latest, • archived in the project portfolio.
Approved by:	The **PM** team and **Finance**.

For call projects, one month before the project end, the **Lead RSE** requests the LA to submit the scientific and financial end report ('Financieel en wetenschappelijk eindverslag'), providing the eScience Center template [13].

RSEs provide the LA with all necessary information for the end report.A complete end report includes:

- Public summary (in English) with objectives and results
- Challenges (the team encountered during the project)
- Opportunities (the work of the project led to)
- Remarks on sustainability and latest management plans
- outcomes missing from the RSD (e.g., software, papers, presentations, workshops, testimonials)
- information on the project workshops
- financial overview (if applicable)
- LA's signature and date (or financial/project manager's if LA unavailable)

For collaborative calls, the LA and **Lead RSE**'s report to other funders (e.g., NWO) suffices if it covers the above points.

Before the formal closing of the project, the **Lead RSE**

- receives the signed end report from the LA (preferrably, in PDF format)
- verifies the scientific part of the end report against the end report checklist. If needed, the **Lead RSE** asks the LA for additional information or corrections to the end report, before submitting it to the **PM**.
- ensures all missing project output is registered in the appropriate systems (see Section 3.7.1)
- archives the end report, the lastest DMP and SMP, checklist in the respective project portfolio.

If the end report is satisfactory and all the aforementioned steps are completed, the **Lead RSE** submits it to the **PM** to get the project formally closed. The **PM** requests **Finance** to review the financial part of the report and either approve it or request corrections to it.

Projects that are funded by software sustainability budgets have their own procedure for end reports (see Appendix B). The end report of these projects consists of output registered on the RSD project page and updated summary of the project.

For **external projects** the way a project is formally closed depends on the formal documentation for a project and requirements from the external funding organization. If an end report is required, the **Lead RSE** contributes to it (**PMs** can assist when needed), and care should be taken to reserve some time (and budget) during the project for this effort. **Finance** prepares the financial part of the report. The **Lead RSE** shares the final version of the end report written for the external party or funding organization (e.g., EU, NWO) with the **PM** and **Finance**, and archives it in the project portfolio. In any case, the **Lead RSE** ensures that the RSD project page is up-to-date (with complete deliverables and layman summary of the completed project).

Finance periodically sends a list of missing end reports to the **PM** team. If the end report is not submitted yet, the **PM** sends a reminder to the LA.

4.2 Formally closing the project

If both scientific and financial part of the end report is satisfactory, the **PM** puts decision to formally close project on the **PM** meeting agenda. After the formal decision[8], the **PM** notifies the **TLs**, **Finance** and Communications (with the links to the documents). **Finance** handles the approved reports and formalities related to closing the project. This includes getting the final signature by **DoO** or Executive Director on the official letter for the LA about the project closing ('Afsluitingsbrief'), communicating it to the LA, and archiving the letter in the project portfolio.

The **PM** ensures that the project is marked as complete on the

- RSD: The **Lead RSE** updates the project page with the lay summary (from the end report), any missing metadata (e-Infra use, keywords, deliverables, etc.) and sets the project status to 'Closed'. See also Appendix D.
- Corporate page: Communications may also request more information to promote the completion of the project through various channels, including but not limited to a news item, social media post, video and interview.
- Exact/Project portfolio: **Finance** closes the Exact project budget, uploads the official closing letter to the LA, as well as all appropriated documents.
- Ganttic: The **PM** ensures that no one is assigned to the project in the future.

Related links and references

[1] The Netherlands eScience Center. 2015 NLeSC Protocol voor Calls, Subsidietoekenning en Projectmanagement.

[2] European Commission and Directorate-General for Digital Services. *PM² Project Management Methodology – Guide 3.1*. Publications Office of the European Union, 2023. doi:doi/10.2799/970188.

[3] Frederick P. Brooks. *The Mythical Man-Month: Essays on Software Engineering*. Addison-Wesley, Boston, MA, anniversary edition, 1995. ISBN: 978-0201835953.

[4] Tom DeMarco and Tim Lister. *Peopleware: Productive Projects and Teams*. Addison-Wesley, Boston, MA, 3rd edition, 2016. ISBN: 978-0321934116.

[5] The Turing Way Community. The Turing Way: A handbook for reproducible, ethical and collaborative research, April 2025. doi:10.5281/zenodo.3233853.

[6] Rena Bakhshi. Introduction to (Research) Software Project Management, March 2025. doi:10.5281/zenodo.15058230.

[8] Formally recorded by the **PM** team, and thereafter ratified by the DT team (see more in [7]).

[7] The Netherlands eScience Center. Intranet. http://intranet.esciencecenter.nl/.

[8] The Netherlands eScience Center. What is a Research Software Engineer? A definition by the Netherlands eScience Center. https://doi.org/10.5281/zenodo.7994286, 2023.

[9] GDPR.EU. General Data Protection Regulation (GDPR). https://gdpr.eu/. Acessed: November 1 2023.

[10] Digital Competence Center Praktijkgericht Onderzoek (DCC-PO). AVG en privacy in onderzoek. https://dcc-po.nl/kennis-expertise/themas/juridisch/avg-en-privacy-in-onderzoek/, 2025.

[11] Universiteiten van Nederland. Handreikingen voor gebruik van persoonsgegevens in wetenschappelijk onderzoek. https://www.universiteitenvannederland.nl/handreikingen-voor-gebruik-van-persoonsgegevens-in-wetenschappelijk-onderzoek, 2025.

[12] The Netherlands eScience Center. Netherlands eScience Center strategy. https://www.esciencecenter.nl/wp-content/uploads/2021/07/eScience-Center-2021-2025-Strategy-1.pdf. Acessed: November 1 2023.

[13] The Netherlands eScience Center. Project Portfolio (the internal project repository).

[14] Research Software Directory. User documentation, 2025. URL: https://research-software-directory.org/documentation/users/.

[15] Carlos Martinez-Ortiz, Rena Bakhshi, Yifat Dzigan, Nicolas Renaud, Faruk Diblen, Berend Weel, Maarten van Meersbergen, Niels Drost, Sven van der Burg, and Fakhereh Alidoost. Structured and Unstructured Teams for Research Software Development at The Netherlands eScience Center. *Computing in Science & Engineering*, 24(3):25–32, 2022. doi:10.1109/MCSE.2022.3167448.

[16] J. H. Spaaks. ASReview & HOLM plan. https://doi.org/10.5281/zenodo.7849050, April 2023. Zenodo. doi:10.5281/zenodo.7849050.

[17] The Netherlands eScience Center. Bijzondere voorwaarden Netherlands eScience Center subsidies. Available via https://www.esciencecenter.nl/calls-for-proposals/. Acessed: November 1 2023.

[18] OMIMO. micro.p3.express, minimalist project management for micro projects. https://micro.p3.express/, 2023.

[19] Jeff Sutherland and Ken Schwaber. The Scrum Guide. https://scrumguides.org/index.html.

[20] AgileFirst. Shape up: A complete guide to this new development methodology. https://agilefirst.io/what-is-shape-up/, 2024.

[21] Greg Wilson, DA Aruliah, CT Brown, NPC Hong, M Davis, RT Guy, SHD Haddock, KD Huff, IM Mitchell, MD Plumbley, et al. Best practices for scientific computing. *PLoS biology*, 12(1):e1001745, 2014. doi:10.1371/journal.pbio.1001745.

[22] Kent Beck and Cynthia Andres. *Extreme Programming Explained: Embrace Change*. Addison-Wesley Professional, 2nd edition, 2004. ISBN: 978-0321278654.

[23] Maria Cruz and Eveline van den Berg. NWO DMP assessment rubric, January 2020. doi:10.5281/zenodo.3629157.

[24] Carlos Martinez-Ortiz, Paula Martinez Lavanchy, Laurents Sesink, Brett G. Olivier, James Meakin, Maaike de Jong, and Maria Cruz. Practical guide to Software Management Plans, October 2022. doi:10.5281/zenodo.7248877.

[25] Mark D. Wilkinson, Michel Dumontier, IJsbrand Jan Aalbersberg, and *others*. The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, 3(1):160018, Mar 2016. doi:10.1038/sdata.2016.18.

[26] Neil P. Chue Hong, Daniel S. Katz, Michelle Barker, Anna-Lena Lamprecht, Carlos Martinez, Fotis E. Psomopoulos, Jen Harrow, and RDA FAIR4RS WG. FAIR Principles for Research Software (FAIR4RS Principles), June 2022. doi:10.15497/RDA00068.

[27] Universiteitsbibliotheek Utrecht. Amendement taverne. https://www.uu.nl/universiteitsbibliotheek/taverne.

[28] Open Universiteit. Taverne – Article 25FA – End user agreement. https://www.ou.nl/taverne-agreement.

[29] The Netherlands eScience Center. eScience Training: Digital skills workshops. https://www.esciencecenter.nl/digital-skills/.

[30] Niels Drost, Jurriaan H. Spaaks, Bouwe Andela, Lourens Veen, Janneke M. van der Zwaan, Stefan Verhoeven, Patrick Bos, Mateusz Kuzak, Ben van Werkhoven, Jisk Attema, Johannes Hidding, Vincent Hees, Carlos Martinez-Ortiz, Hanno Spreeuw, Joris Borgdorff, Katrin Leinweber, Faruk Diblen, Gijs van den Oord, Romulo Goncalves, Arnold Kuzniar, Dafne van Kuppevelt, Berend Weel, Christiaan Meijer, Jason Maassen, Pablo Rodríguez-Sánchez, Tom Klaver, Willem Robert van Hage, Felipe Zapata, and Tom Bakker. *Netherlands eScience Center - Software Development Guide*. Zenodo, September 2020. doi:10.5281/zenodo.4020564.

[31] The Netherlands eScience Center. CAO & Personnel policy. CAO is available via https://www.wvoi.nl/.

[32] Netherlands eScience Center. Software Sustainability at the Netherlands eScience Center (Version v5). https://doi.org/10.5281/zenodo.15646828, 2024. Zenodo. doi:10.5281/zenodo.15646828.

[33] The Netherlands eScience Center. Fellowship Programme. https://www.esciencecenter.nl/fellowship-programme/.

[34] Netherlands eScience Center and de Boer, L. and Martinez-Ortiz, C. eScience Center Fellowship. https://doi.org/10.5281/zenodo.15653175, 2024. Zenodo. doi:10.5281/zenodo.15653175.

Appendices

A Lead RSE role description

This role description includes guidelines that need to be followed by RSEs fulfilling the role; they will be complemented by protocols.

1. Role	**Lead RSE**
2. Place in the organization	Project
3. Contacts	**PMs**, project team RSEs, external project partners, **TLs**,
4. Purpose	To carry responsibility for the day-to-day running of a research project at the eScience Center and act as main contact point for the project. Each project has one **Lead RSE**.
5. Main tasks & responsibilities	• Coordinating day-to-day activities with other RSEs working on the project; • Carrying responsibility for agreements with the accountable **PM** on the division of tasks and the allocation of time within the project; • Making sure that activities, procedures and targets agreed upon are carried out and met on time; • Monitoring project progress, including project hour expenditure, and regularly reporting progress to the accountable **PM**; • Ensuring the presence of the accountable **PM** at all formal meetings; • Ensuring that general technological solutions are approved by the **PM** after due consultation of **TL**, and monitoring their implementation; • Ensuring that generalization and re-usability opportunities are implemented from the start of the project, after due consultation of **TL** and on approval of the accountable **PM**; • Solving everyday technical and managerial problems, and, if needed, communicating these to the **PM**; • Ensuring the visibility of the project through project demonstrators, slide decks and other means; and/or • Making sure all project output is properly released, documented and archived in the designated systems.
6. Competencies	• Negotiating • Communicating • Cooperating • Leading • Result orientation • Planning and organizing
7. Available resources (budget, hours, training)	In project budget
8. How to get this role	**PM** assigns **Lead RSE** based on skills, experience, knowledge, interest and availability, after prior consultation of SH.

B Role of PMs and others in external and Ambition 2 projects

This section focuses specifically on the role and involvement of the **PM** team in Fellowship, External, KD, SS and D&C projects.

B.1 Fellowship projects

Funded through the calls budget, Fellowship projects differ in purpose and organization from regular call projects. CMs are responsible for these projects, and a **PM** assigned by the **PM** team is advising them.

B.2 External projects

1. Acquisition
    - The eScience Center staff must follow the external funding policy and seek permission before pursuing an acquisition opportunity, in consultation with a **PM**.
    - During this consultation, the **PM** must be informed of:
        - estimated workload in person-hours
        - team composition and whether the person submitting the proposal intends to serve as **Lead RSE**
        - timeline of the proposal/project
    - The **PM** can advise the **Lead RSE** on the proposal. If the advice is critical, the **PM** informs the PD. If additional (temporary) capacity is needed, the **PM** contacts the relevant SH. Note: planning remains provisional at this stage.
2. Preparation of project – call/subsidy projects
    - The **Lead RSE** informs the PD, **Finance**, **PM**, SH, and relevant parties immediately upon granting confirmation.
    - The PD, **Finance**, and **Lead RSE** handle grant, consortium agreements, and project start documents.
    - The **PM** agrees on planning with the **Lead RSE** and the project team, and puts it in Ganttic.
3. Preparation of project – contract projects
    - The **Lead RSE** and **Finance** arrange the contract, the **Lead RSE** keeps the **PM** informed of start dates.
    - The **PM** agrees on planning with the **Lead RSE** and the project team, and records it in Ganttic
4. During the project
    - See the protocol for the relevant parts. The **PM** acts in consulting role and **Lead RSE** is accountable.
5. Reporting
    - As noted in Section 3.10, the **PM** reviews the report. The **Lead RSE** or the grant applicant is responsible for obtaining the financial report from **Finance** and sending it to the external coordinator.
6. Closing of project
    - **Lead RSE** informs **PM** of closing of project for funder or end of contract
    - **PM** follows formal closing steps as described by Section 4.

B.3 KD and SS projects

The process for KD and SS projects is fully described by the KD and SS protocols [7], respectively.

1. Call and selection
    - Follows the protocol
    - Upon granting, DoT or **TLs** inform **Finance** (cc **PMs**) which projects to create in Exact.
2. Preparation of the project
    - The **PM** formally assigns the **Lead RSE**, discusses planning with the team, and enters it in Ganttic.
3. During the project
    - The **PM** is not directly involved in the project unless requested by **Lead RSE**.
4. Reporting
    - The extent of reporting is decided upon by DoT and **TLs**.
5. Closing of project
    - **Lead RSE** informs **PM** of closing of project
    - **PM** follows formal closing steps, as described in Section 4.

B.4 D&C projects

D&C projects for external funding follow the same process as other external projects.

The process for the D&C projects for training and workshops is as follows:

1) Each October, the D&C training lead provides SHs and **PMs** with an overview of training hours, including estimates for externally funded training.
2) SHs coordinate with RSEs on next year's training plans, ensuring total hours match D&C projects needs. SHs share the planning with **PMs** and the training lead, and **PMs** incorporate it into projects planning.
    a. If training activities put project progress at risk, the **PM** alerts the SH. Together, they decide whether to reassign the training or the project to another RSE.
3) During the year
    a. If an RSE exceeds their agreed upon training hours, the SH is responsible for discussing this issue with the RSE and taking appropriate measures.
    b. If a project is (unexpectedly) progressing unsatisfactory due to the RSE involved in training, the **PM** discusses this with the SH and the RSE and takes appropriate measures.
    c. If requests for externally funded training exceed the annual estimate, the training lead consults **PMs** on scheduling before deciding to give the training.

C Example of the project log

Running log for Project XXX

2022-03-12 Output: submitted paper

2022-02-02 Mr. X assigned as **Lead RSE**

2021-01-01 Kick-off meeting

Present – NLesC: AB (**PM**), AA (**Lead RSE**), AC (**TL**), AD (RSE)

Present – Team: FA (LA, TU Delft), PA (PhD student, TU Delft), RA (TU Delft)

Agreements:

- Lorem ipsum dolor sit amet, consectetur adipiscing elit,
- sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris.

2021-02-10 SURF proposal granted

We received a grant (link) to infrastructure. We did not get Snellius access but were sent to Lisa as that also has enough harddrives.

2021-02-02 SURF infrastructure proposal

We submitted a proposal to SURF (talked to Henk). We decided to use Snellius as the harddrive in my laptop is too small.

Project Start

	Date	**Slides/Meeting notes/URLs?**	**Notes**
Administrative Start meeting	2021-01-01		
Project Kick-off	2021-01-01		
Review1	2022-06-01		To plan final date
Review2			
Tech plan v1	2022-06-20	github.com/shico/techplan.rst	**TL** comments...
Paper			TODO: Add to RSD
Presentation		URL (to the project portfolio)	Uploaded to RSD and Zenodo

D RSD project pages

Each project at the eScience Center has an RSD page.

Project Initiation At the project start, the following data should be added to the RSD project page:

- grant ID: currently, the Exact number of the call project or the Awarding letter reference (will be replaced by RAiD later). External funders (e.g., EU, NWO) often provide their own ID.
- funder(s): list of all funding organizations, including the eScience Center.
- dates: Project start and end dates.
- research domain: relevant project domain, often from the proposal. Multiple domains can be chosen.
- participating organizations: list of the organizations, including the eScience section(s).
- description: Typically copied from the proposal abstract.
- a cover image: initially a placeholder image provided by the Communication
- relevant keywords and categories
- the call type: the specific funding scheme or program through which the project is supported.

When reusing a project page under new funding, **Lead RSE** updates it with the new funding source and details.

Project Execution During the project, the following data should be added or updated as needed:

- repository link: URL to the GitHub (or other version control platform) containing the project's codebase.
- project team: the list of all project team members including the LAs and their team, with roles and ORCIDs where possible. RSEs should update the list as the team members change, and use the role field to indicate involvement periods.
- related projects: the link(s) to any precursor project(s) in RSD.
- deliverables: any project deliverables (see also Section 3.7.1) including but not limited to
  - all research deliverables of the project, i.e. publications such as papers or published datasets (using the DOI provided by the publisher), preprints of papers (using the DOI provided by the preprint server) self published research outputs, such as datasets, presentations, posters, reports, etc. (using the DOI it receives when uploaded to Zenodo), Online material such as websites, notebooks, online tutorials, blogs, videos, news items, interviews, etc. (registered using the URL and a short description).
  - all software deliverables: all reusable software should have its own RSD software page and be linked as related software. Single-use software (e.g., scripts) can also be archived or released via Zenodo and can be added via DOI. Versioned releases archived in Zenodo can be added via DOI, in cases when software has been developed in multiple projects.
  - design documents: the documents such as the Technology Plan, SMP and DMP can be published on Zenodo, and added using their DOIs.

Project Closing Once the project is coming to an end, in addition to the end report data, the following data RSEs are highly encouraged to add:

- testimonials from the project partners or user community
- list of all digital infrastructure used by the project team during the entire project