

1. NeIC Dellinger Resource Sharing Project plan

1. Edition history

Edition	Date	Comments
v1.0	20 April 2016	Document created
v2.0	14 May 2016	Updated as a 2 phase project
v2.1	20 May 2016	Incorporated SE comments
v2.2	27 May 2016	Incorporated NO comments, edited for grammar and spelling, produced a clean copy.
v2.3	15 June 2016	Incorporated NeIC Board recommendations to increase Phase 1 staffing and decrease the time frame
v2.4	15 Mar 2107	Updated with information from Collaboration Agreement for the Phase 1 project
v2.5	18 Apr 2017	Phase 2 updates
v2.6	22 May 2017	Phase 2 updated with the SG
v2.7	22 June 2017	Phase 2 deliverables to be detailed
v2.8	14 Sept 2017	New comments from SG added. Updated DO 1,2,4,5,6,7,8. Added Gantt chart.
v2.10	14 Nov 2019	Comments from SG meeting Sept 28th added. Gantt chart updated.
V2.11	18 Dec 2019	Changed title for DO8... missed from HLT meeting in May 2019!

2. Basic information

2.1. Approval of project plan, definitions and appendices

2.1.1. Approval of the project plan

Project plan approved by:

Steering group (chairman):

Project manager:

2.1.2. Definitions

Word / abbreviation / acronym	Explanation

2.1.3. Appendices

Appendix	Document name	Edition and date

2.2. The project, overall description

2.2.1. Project scope [Updated in v2.4]

In order to support researchers who rely on effective national and international research computing e-infrastructures, the Delligr project[1] will evaluate the requirements for implementing a framework that supports the access and sharing of this e-infrastructure amongst the Nordic countries as Phase 1, and based on the outcomes of Phase 1, will implement the framework in those countries wishing to participate in Phase 2[2]. The project is to be officially launched with the approval of the NeIC Board and will run for three years. The project will be at the level of up to 0.25+0.25 FTE per participating site for phase 1 for 6 months (Sept 2016-Feb 2017), and increase to approximately 1+1 FTE for each participating site during the years of the phase 2 (June 2017-Sept 2019). The funding levels assume 1:1 co-funding from NeIC and the partners for FTEs working at each of the national providers and NeIC providing an additional 0.5-1 FTE for project management.

The final result of this project will be an equitable and fair process for sharing and exchanging access to resources across the Nordics. It will be transparent and easy to master for researchers in all domains while highlighting and enhancing national computational and related capabilities.

2.2.2. Success factors

The most important success factors are the following:

- Close collaborations with the national providers to coordinate the processes and end results amongst the national priorities and e-infrastructures.
- Close interactions user communities (through the pilot users) to researchers' needs to ensure that all processes are simple, lightweight and appropriately responsive.
- Availability of hardware resources from the national providers.
- Availability of personnel with applicable competencies for project work.
- Effective project management.
- Open and transparent communication.

2.2.3. Interdependencies to other organizations or projects

The Dellinger project is aligned with the NeIC Sharing Resources Focus Area. It will coordinate with the Pooling Competencies and Stakeholder Engagement Focus Areas to appropriately connect the project to the capabilities and expectations of the national providers.

The project works together with the national providers in Nordic countries. Dellinger will connect and supplement national initiatives. Coordination of work will take place with national allocation, accounting and user support processes as well as others as needed.

3. Idea and objective

3.1. Background

Researchers are increasingly using sophisticated computational and data analysis systems to address research problems that are broader and deeper in probing the limits of the physical universe, natural and built up environments, the full range of human experience and the interactions between each of these. As a result, research collaborations are evolving and expanding to include the wider range of fields and domains necessary to consider these problems at different scales, with more integrated approaches and in larger scientific and societal contexts.

Consequently, long-term access to well supported computational and associated data analysis systems is fundamental to the success of the research endeavours. However, the sophistication of the systems has moved in new directions with the growth (and divergence) of HPC, cloud computing, data intensive computing and as well as citizen science.

The exploration of a coordinated long term Nordic e-infrastructure approach that makes computational, data and user support readily available to all Nordic researchers in all fields reflects the growing reality for research projects in the context of international collaborations, programs, and international competition. Some aspects of this are already being considered through existing projects, such as Glenna for cloud computing, Tryggve for sensitive data and the initiation of data management workshops. The increasing sophistication of systems bring out additional considerations in terms of costs, timeframes and user support.

An effort focused on HPC and related aspects complements these efforts and is consistent with strategic directions in the Nordic region as embodied in the Nordic e-Science Action Plan:

- Action 6: Nordic Sharing and Exchange of e-Infrastructure Resources
- Action 8: Nordic High Performance Computing Collaboration.

And is also embodied in the NeIC Strategy Implementation Plan 2016-2020, which has Share Resources as one of the four focus areas. From the Plan:

Resources can be hardware (CPU cycles, storage), software, services, or human resources. A framework for sharing hardware resources is necessary for pursuing several collaboration opportunities, including HPC, data storage and cloud initiatives. Important elements include federated authentication, authorisation and accounting, as well as harmonizing procedures in compliance with national rules and regulations. Another opportunity is the sharing of application expertise for advanced user support.

One of the strong motivations on the part of the national providers is to more fully understand the opportunities for their national researchers to have uninterrupted access to high quality computational resources during transition periods between systems and architectures. These transition periods primarily occur during hardware upgrades and acquisitions. Another motivation to share resources is to open new research opportunities by allowing users to access resources with characteristics (hardware, software, support) that cannot be found in their home countries.

The project will be defined and carried out in two phases with the involvement of national providers through an open planning effort. The planning will explore and consider the possibilities, processes and steps necessary to carry out the project in a manner that is harmonized with and supportive of the national providers and programs while also supporting Nordic programs. The first phase will focus on the use cases, analyses of the current approaches in each country and possible implementation strategies for access to cpu cycles. The second phase will be the implementation phase and will result in an environment that encourages and supports resource sharing within the Nordic region, including the high-level cooperation between the national providers.

3.2. Project idea

Nordic e-infrastructure providers will more effectively support researchers to access a range of computational resources within the region by improving resource utilization and user access to computational resources.

3.3. Project objective and objective priority

3.3.1. Objective

The result of the project is a set of e-infrastructure policies, common processes and associated framework that forms a Nordic platform for providing services to share resources in an effective and consistent manner.

The objectives of the project can be summarized as:

Phase 1

1. Determine the availability of excess node hours to be exchanged during phase 2.
2. Determine any constraints (e.g. national rules and regulations) that can affect the resource exchange.
3. Determine if there are technical obstacles preventing such a resource exchange.

Phase 2

1. Policies are developed and implemented to support sharing, in the Nordic countries, of HPC computational resources and other critical resources and competencies (e.g. local support).
2. Resource exchange mechanisms are defined and agreed to by the participating national providers.
3. Continue to use the approved methods for monitoring and tracking usage that have been implemented. Also use the processes for supporting research users that are in place for shared resources.
4. Research users are fully and fairly informed about access policies and mechanisms for shared resources and have equitable access to shared resources.

The results of the project will be delivered to the national providers in Nordic countries.

3.3.2. Priority of the objective

The project is result-oriented, meaning that producing an environment serving the needs of Nordic research communities is the most important priority.

The duration of the project is planned to be 3 years, which should be sufficient time to work through at least one technology refresh cycle for system upgrades within the countries. However, there is push to produce results continuously and efficiently to maintain motivation for funding the project and, even more crucially, to maintain the Nordic countries' leading position in providing research computing services.

The above makes cost the least critical of project objectives. The funding for the project is available for the duration of the project -- provided that project has good progress -- and the financial position of NeIC is solid.

In terms of numerical values the priority is defined as for phase 1:

Result	Time	Cost
0.6	0.3	0.1

3.4. Limitations

The project is not intended to change the processes by which the national providers manage, allocate or otherwise support the national research priorities, including acquisition and operations. These processes reflect the approaches chosen within each nation for a set of valid reasons. Dellinger will find approaches that support areas of mutual interest and priority between the national providers for supporting research priorities.

Dellinger will not replace the methods by which the national providers work with the national users and user communities. The approaches associated with extending the national abilities to support the research goals through cooperative sharing or exchange of appropriate capabilities or technologies should be structured to enhance the national capabilities and timelines.

The methods chosen to authenticate users or confirm the authorisation of users to access the national systems and to verify or otherwise confirm their usage on the national systems are not within the scope of the project. The exchange of related information and verification processes or techniques should be within the scope of the project.

Research projects that work with topics that have privacy or strong intellectual property implications, such as health or proprietary industrial projects, are not within the mandate of this project. Sensitive data projects should not be considered as candidates for resource sharing without additional, project specific or domain specific analysis and consideration.

4. Delivery and transferral

4.1. Delivery and approval

The deliveries of the project are approved by the Steering group based on a proposal by the Project manager. The normal procedure will be to present or demonstrate the result in a project meeting before asking for an approval in the Steering group. Delivery in this project plan means that the Steering group accepts the work

from the project. Delivery does not imply that responsibility or maintenance of the delivery object is removed from the project. This step is called Transferral of the result.

The project will need to work with a number of use cases from different domains and different countries. The origin of use cases arises from processes to interact with user communities and also through national providers. There will be one pilot use case associated with Natural Language Processing (NLP) to support the initial impetus. It is anticipated that there will be at least one complex use case per country to ensure that all processes are functionally correct before general availability to researchers is announced. These more complex use cases will be presented to the Steering group as information items that are intended to more fully define the space for international research collaborations.

Mostly the work in the project is done through policy definition, implementation and analysis cycles, so that results are demonstrated and presented for feedback early and often. Correspondingly there will be more than deliveries of most Delivery objects (introduced below). These will be presented as deliveries n.x (i.e. partial delivery x of Delivery object n).

Phase 1

Project initiation: September 2016

Delivery object 1: Dellinger requirements

Content: Overall requirements for resource sharing and current usage modes for non-national users, e.g. co-PIs, PRACE, guest or test accounts are documented. An analysis of current computational capacities and projections of future capabilities for making resources available will be conducted for the period of 2016-2020. Pilot projects will be identified and used to define the user requirements.

Recipient: The national providers.

Delivery process: Delivery is a document describing the requirements and possible avenues for meeting those requirements based on projected capabilities. Relevant phase 2 delivery objects will be defined, including staffing.

Delivery date: Steering group meeting in December 2016.

Delivery object 2: Resource exchange technical analysis

Content: Technical outline for resource sharing between countries, including user support.

Recipient: The national providers and NeIC.

Delivery process: Delivery is a document that describes an acceptable technical framework that enables resource sharing and will include the identification of technical issues and potential approaches to resolving them. Relevant phase 2 delivery objects will be defined, including staffing.

Delivery date: Steering group meeting Apr-May 2017.

Delivery object 3: Resource exchange structural analysis

Content: National rules and regulations that may affect the exchange of resources will be identified and evaluated, including an analysis of issues that may relate to VAT. This will also include topics related to the resource allocation, accounting and security processes in each country.

Recipient: National providers and NeIC.

Delivery process: Delivery is a document describing the regulatory, legal and national resource management framework that an implementation would have to satisfy along with approaches for operating effectively within the framework. Relevant phase 2 delivery objects will be defined, including staffing.

Delivery date: Jun 2017.

May-Aug 2017: Decision window for continuation into Phase 2 with either the full group or subset of partners and formalized by Sept 1, 2017 with the initiation of Phase 2.

Commitments to Phase 2 and agreement to the phase 2 delivery objects are determined during the decision window.

The phase 2 delivery objects below are only intended to provide an initial view of the second phase and will be updated/deleted/replaced as necessary during phase 1.

Conceptual Phase 2:

Phase 2 will consist of two major tracks:

1. Proof of concept through research driven pilots;
2. High level planning and coordination to ensure that the project remains aligned with the national providers.

Track 1: Proof of concept through research driven pilots

Delivery object 1: Resource exchange models

Content: Models for balancing or compensating for resource usage will be developed. This work will include the necessary tools and analysis to ensure that the models are consistent with Phase 1 DO3. These models can range from summing simple CPU-time to sums weighted by the specifications of the shared computing capacity. The shared resources in the pilot will be benchmarked utilizing HPL. The resource-sharing model will include data from the pilot projects as proof points.

Recipient: The national providers and NeIC.

Delivery process: Delivery is a document describing the exchange mechanism, exchange rates and fungibility and metrics for resource exchanges.

Delivery date: March 2018.

Delivery object 2: Resource exchange analysis

Content: This is an update on the pilot usage of the initially contributed resources across the Nordics. Before this document is produced, the aspects of the pilot to be analyzed are determined. The document will give recommendations for changes or modifications, if and where needed. The feedback and evaluation from the pilot users including interviews where applicable will be included. The question of the extension of the current pilot or an additional pilot will be addressed.

Recipient: The national providers and NeIC.

Delivery process: A document that gives an analysis of the resource exchange model after half a year of use by the national providers.

Delivery date: September 2018.

Delivery object 3: Pilot projects: NLPL and additional pilots

Content: This document will describe the exercise of the existing national structures and initial implementation of the technical approaches for access, authorisation, accounting and user support from phase 1 DO2. This will include an analysis of issues that differ from the technical outline given in phase 1 DO2. The revised approaches and, if needed, mitigation strategies to resolve these issues will be presented.

Recipient: The national providers and NeIC.

Delivery process: Delivery is a document describing the approaches that have been adopted in each country to support a simple Dellinger pilot project and the NLPL.

Delivery date: June 2018.

Delivery object 4: User authentication, authorisation and accounting

Content: Final verification of policies and technologies facilitating Authentication, Authorisation (AA) and Accounting (AAA) of resources by Nordic users. An aggregated harmonized accounting system for shared resources will be investigated. Suggestions, technical or policies, in order to integrate the various national Authentication and Authorization systems are to be outlined. Replacing national AA systems in usage is impractical.

Recipient: National providers and NeIC.

Delivery process: Delivery is a document analyzing the usage and approaches in user AAA with suggestions for changes or improvements. Mid-term progress report in June 2018, expectation is that a system is in the testing phase.

Delivery date: December 2018

Delivery object 5: Resource exchange implementation and agreement

Content: The preconditions for setting up a process that enables continued sharing of HPC-resources are evaluated. The preconditions include:

- Policy, what is the opinion of national funders, ministries, et.al. regarding resource-sharing;
- Legal, the limits placed on the usage of funds, sharing across borders and VAT;
- Practical, in order to facilitate sharing of resources across borders a process, from call to allocation decision, needs to be established.

These preconditions must be evaluated in close interaction with management of national provider organisations and resource allocation committees. Should these preconditions be met, a framework agreement can be put in place with the national providers.

Recipient: National providers and NeIC.

Delivery process: Delivery is a status report on the initial steps for long-term resource sharing.

Delivery date: April 2019

Delivery object 6: Nordic availability of shared resources

Content: The contributed shared resources will be made available to researchers in the Nordics through merit-based competitive mechanisms. These mechanisms, for example a support structure for the open call and an “allocation committee”, will balance the capabilities, timelines and loads on the resources. This would be done through an open call from the National Providers.

Recipient: National providers and NeIC.

Delivery process: Delivery is an operational process that supports research based usage of resources across national boundaries. Open call out in June 2019.

Delivery date: December 2019.

Track 2: High level planning and coordination

Delivery object 7: Establishment of high level information exchange mechanisms

Content: A forum for the exchange of planning information for resources to be available in the Nordics will be established. Gathering development roadmap information from the vendors, e.g., exercising 3-way NDA. What would be available to share and not to share by each national provider in the future. Explore possibility of saving costs, i.e., the manpower for benchmarking. Exchange the experiences from the procurement and deployment projects. Trends in types of usage. National priority roadmaps, looking into synergies and what differentiates the countries.

Two work packages are foreseen:

1. Benchmark all the known HPC resources in the Nordics using the standard developed by Bencheit/DeiC (which includes spending and numbers on HPC resources). **Recipient:** National providers. November 2017.
2. Establish a forum led by NeIC project manager to facilitate a forum of national HPC providers. Inviting of national HPC providers in the Nordics to discuss sharing policies. Members including directors of national e-infrastructure providers, NeIC. Also a forum of experts for people running national procurements to exchange experiences. Responsible: PM, June 2018.

Delivery process: Establish a forum facilitated by NeIC and platform for gathering the information.

Delivery date: June 2018

Delivery object 8: Common collaboration on acquisition strategy

Content: Investigate how other collaboration, e.g. Met Offices, WLCG, have solved the cross border procurements. Study example cases, e.g., Nordic Met offices, and contact legal representatives to see how agreements have been made, especially regarding VAT.

Recipient: National providers and NeIC.

Delivery process: Project group proposing the process and structure, Project Manager discussion with the Steering Group. Platform to gather the experiences, e.g., wiki.

Delivery date: June 2019.

Delivery object 9: Support in enabling NT1 resource exchange

Content: Enabling resource exchange for NT1 collaboration. The models developed in the Dellinger project for compensating or balancing resource usage will be applied to the NT1 case. These models can range from summing simple core times and data storage size to sums weighted by the specifications or costs of the shared computing and storage capacity. As an example, computing providers in NT1 that have a possibility for sharing an expanded tape library can provide that in exchange for, e.g. providing less computing. The work will include the study of necessary tools for enabling the exchange and analysis to ensure that the developed models are in-line with the strategies of the countries involved.

Recipient: NT1, the national providers and NeIC.

Delivery process: Delivery is a document describing the proposed metrics for resource exchanges within NT1, resource exchange mechanism and exchange rates. A group consisting of NT1 experts, NLCG committee

chair, NT1 steering group, coordinated by the Dellinger Project Manager working on the metrics and coordinating high-level discussions with the countries involved.

Delivery date: November 2019

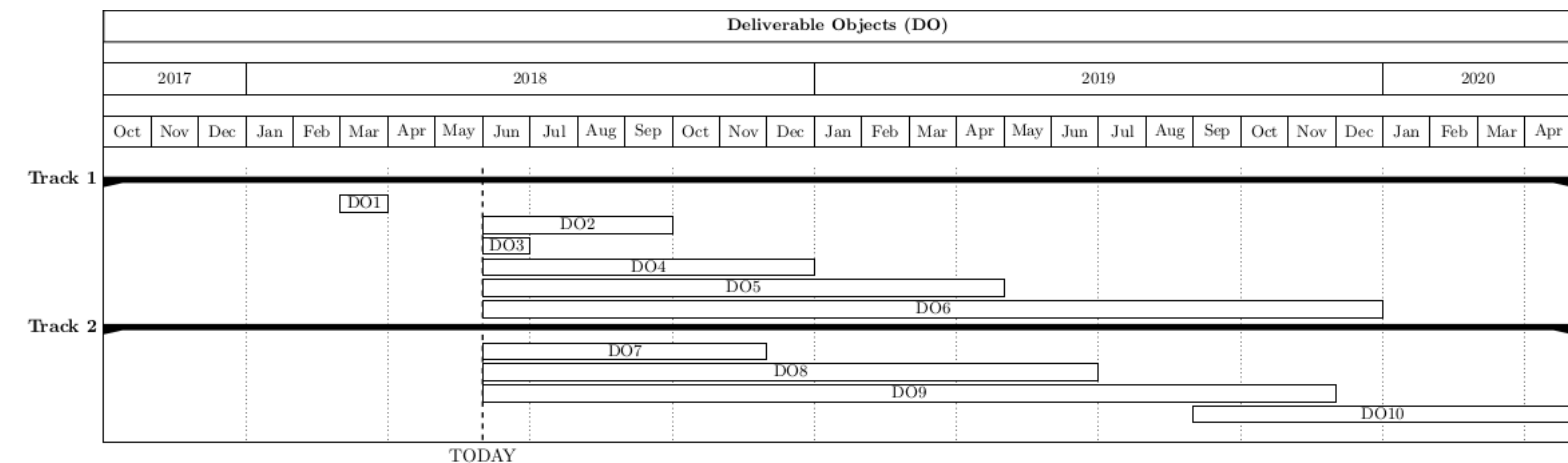
Delivery object 10: Final report

Content: Overall final report, covering both low level and high level tracks, is to be prepared before the end of the project.

Recipient: Steering group.

Delivery process: Delivery is a final report document.

Delivery date: Mid-April 2020.



4.2. Transferral and approval

The results will be delivered mainly to national providers in Nordic countries. The national providers are expected to arrange the operation of the result so that resource sharing will stay be available for researchers after the project ends. This can be done individually or together with one or more of the national providers and NeIC.

The transferral of responsibility for the results will be decided by the Steering group based on a proposal from the Project manager. Accepting a delivery in Steering group does not yet include transferring the responsibility on results from the project. The results will be handed (transferred) over to the operations (latest) based on discussions with the Steering group.

The transferred result is normally an approved delivery together with the associated documentation, including any potential maintenance or support responsibility of the system. Work in the Dellinger project does not affect the ownership of the systems and services at any of the national providers. Thus the responsibility of the operations remain at the national providers that hosts the resources being shared.

5. Organization

5.1. Project organization

The project is organised according the PPS project method with the following groups or roles:

- Steering group;
- Project owner;
- Project manager;

- Project group.

The Steering Group members will be listed on the public wiki page of the project, at <https://wiki.neic.no/wiki/Dellingr>.

The major decisions in the project are done by the **Steering group**. The steering group accepts the Project plan, approves deliveries, and decides on the transferral of responsibility for the project results. The steering group may also modify the project plan if needed.

Practical level project follow-up is done by the **Project owner**, who is also the chair of the steering group. The project owner will oversee that the project works towards the project idea and project objective.

The **Project manager** is responsible for day to day management of the project and for leading the project group. The project manager also maintains the project plan. The project manager makes proposals for the Steering group on decision points, such as acceptance of deliveries, change requests or any running business that needs to be decided. The project manager acts as a secretary in the Steering group meetings.

The Project group is formed by the experts contracted for work in the project. The project group is distributed in different countries and several locations. To facilitate coordination between locations it may be necessary to form topical working groups or teams in the project, spanning countries and locations. Each working group will have a nominated responsible person who reports to the project manager. Some of the potential working groups are, for example:

- Resource equivalence guidelines in accordance with the capabilities or costs of the resources
- Access processes through calls for proposals or participations
- Use case support, implementing and supporting the deployment of use cases

It is planned that the teams have shorter time spans than the whole project, so that once a certain phase of the project is reached, the composition of the team may change. The actual team structure will be refined based on the results of the initial meetings and will be reported to the Steering group afterwards.

5.2. Authority and responsibility

The authority and responsibility of different groups and roles in the project according to the PPS model are shown in the Attachment 1.

6. Schedule and resource need

6.1. Prerequisites and outer dependencies

6.1.1. Prerequisites

The fundamental prerequisite for the project execution are that a set of national computing systems can be considered as potentially accessible for resource sharing.

6.1.2. Outer dependencies

Dependencies or preconditions affecting the project execution include the existing and future legislation or related to VAT, developments from other projects, new technologies, etc. Dependencies between project tasks occur as well; for example the use case implementations may not be able to begin until acceptable progress has been made on the policy developments. These dependencies may become relevant for reaching the project objectives, and they will be managed as a part of normal project execution.

6.2. Project schedule

The project will be run in iterative manner focusing on early delivery and continuous improvement. In practice, cycles of 4-6 months are planned, each ending with a project group meeting ('review meeting'). The purpose of the meeting is to review what has been achieved since the previous meeting, evaluate new input for policy, use cases and requirements, adjust plans and decide the targets for the next period. The results are thereafter presented for the Steering group as appropriate deliveries. In addition, the project review meetings can result in the project manager proposing a change to the project for the Steering group.

The ramp up phase of the project takes place in Fall 2016. The first review meeting took place in February 2017.

A more detailed schedule of the project is given earlier in the section of Delivery object specifications.

6.3. Milestones, decision points

Decision points take place in every Steering group meeting corresponding to the schedule of project development cycles. Each development cycle and project group meeting will be followed by a steering group meeting, that forms a DP5 (decision point on continuing, modifying or terminating the project) and usually also a DP6 (decision point to approve a delivery of the project).

The milestones of the project correspond to the timing of the deliveries.

6.4. Resource need

6.4.1. Resources, competence

The following competencies are identified to be needed (with the competencies needed for the priority objectives marked with bold):

- **Legal expert;**
- **Application experts;**
- **Allocations, authentication, accounting experts/developer;**
- Metadata / database expert;
- Security expert
- Web developer

It is expected that most of these competencies are available through the participating national providers. The total personnel resource budget of the project is:

- Up to 0.5 FTE per site for the project group in phase 1, and additional 0,5-1 FTE for the project manager.
- Estimated and dependent on phase 1 analyses, 1 FTE per participating country in phase 2, and additional 0,5-1 FTE for the project manager

The project may decide to contract external consultants on specific topics, such as legal issues. The cost for this is primarily covered by NeIC, unless otherwise decided.

6.4.2. Training

Training for the PPS project model is planned for all project group members with significant participation in the project. This will be useful also other project bodies such as the including steering group. Introduction of

the PPS model will be given at the project kick-off. Costs for PPS training by Tieto will be covered by NeIC as part of its basic activity to promote common project practices in Nordic collaboration.

Providing training on expertise topics, such as computing, is usually the responsibility of the employer of the experts. The project will arrange or pay training on these only in exceptional cases and with a case-by-case decision of the project manager, with consultation of the project owner.

6.4.3. Resources, equipment, etc.

The project is not planning to acquire equipment for the systems. The equipment (hardware) is offered by the national providers, with possible NeIC financial contribution to cross-border access, if needed.

6.5. Purchases

The project will have costs in arranging meetings and events, as well as travel costs. It is expected that NeIC will cover these costs when approved beforehand.

7. Working methods

7.1. Requirement dialogue

The requirements for the project are acquired from several sources. The higher level requirements come from the project directive drawn by Planning group members and NeIC. The experts working in the project will refine the requirements to a more technical level. Finally the pilot project or use cases to be implemented are a direct route to learn user and site requirements as they document a certain workflow that the end user wants to accomplish and the national providers need to coordinate in providing. The requirements will be regularly discussed at the project and steering group meetings.

7.2. Change management

Change requests, for example from the research community, from the national providers or from NeIC that are seen to necessitate a significant change in the project requirements are documented in writing. The decision on approval of change requests will be made by the project manager in consultation with the project owner or in a case of major change it will be taken to the steering group for decision.

Small changes can be accommodated within the normal development cycle of the project.

The project manager and steering group will follow the progress of the project and if a significant factor affecting the project is emerging, may decide to re-prioritise the requirements accordingly.

7.3. Information distribution

The project will strive for open and transparent communication. The main hub for communications is the project public wiki page.

Moreover, the information within the project will be distributed in many channels. These include:

- Internal wiki page, for preparing documents and for internal meeting notes;
- Public wiki, the project home page, for all public information of the project;
- Shared access folder (Dropbox or similar mechanism), for sharing presentations and other documents;

- Group chat, for informal discussions;
- Mailing list, for distributing information for stakeholders.

The regular meetings of the project include:

- Project 'review' meetings: every 4-6 months;
- Steering group meetings: every 2-4 months;
- Project group meetings: every 2 weeks;
- Project management meetings: every 1 week.

It is important that the information inside the project flows directly between the team members and teams without always going through the project manager, as this would introduce a communication bottleneck. It is also important that the decisions and actions taken at working group meetings are documented in the wiki so that the whole project can stay updated on the progress.

The minutes of the reference group and steering group meetings are public once approved by the meeting participants.

7.4. Document management

Documents produced in the project will be put either in internal wiki, public wiki and/or the shared access folder. All documents that potentially have interest outside the immediate project group should be placed on the public wiki, if there's no specific reason to not publish them. The internal wiki is mainly for documents in preparation or for meeting notes etc. that are not of general interest (e.g. working group meetings, project management meetings). Shared access folders are for sharing presentations and documents that are not practical to share in the private wiki.

7.5. Quality assurance

7.5.1. Project analysis

Specific project analysis or project review is not planned. There are the regular decision points (DP5) in which steering group decides on continuation, modification or termination of the project. Also a mid-term status report presentation is required by NeIC.

7.5.2. Quality plan

The quality of the deliveries will be shown by demonstrations at the project meetings and by tracking the pilot project and used cases. The emphasis is to produce a functional policy framework in each project cycle.

The pilot project and use case implementations are another way of proving the quality of the results. These early users will be asked for feedback on the implementation and this will be recorded in written form.

7.5.3. Learning

The recurring project meetings present an opportunity to learn from each other. This can assist in working more efficiently on the next policy and implementation cycle. Additionally, larger NeIC events are suitable for sharing experiences. Project will list the lessons learned in its final report.

7.6. Confidentiality and security

The project members shall not distribute or disclose any confidential information they might get during the project, concerning for example the business of employing organizations, national providers, or researchers.

The project aims at open communication in its execution. However, before publishing information consideration is required whether there is particular reasons for this information not to be public. If in doubt, it is good practice to ask the author of the document in question, the project manager, or the funders of the project, whichever is applicable. The Steering group can make the final decision on withdrawing project documents from public access.

7.7. Environment

The project takes care of the environment e.g. by having often online meetings instead of physical meetings thus reducing the traveling needed in the project.

7.8. Administrative routines

Service contracts will be made for persons working in Dellinger project. The contract will be made between the employing organization and NeIC. The service contract specifies the amount of working time committed for the project. Formally the project manager decides on nominating persons to work for the project.

The project personnel should follow the practices of their home organization for time reporting. The Dellinger project does normally not require time reports. Instead, the results will be closely followed.

NeIC will cover costs for travel which is necessary for the project work. Covering the travel costs need to be agreed beforehand with the project manager.

8. Risks

8.1. Risk list

Certain risks concerning the project execution and outcomes are identified and listed below. The risk list and response plans will be reviewed in the June 2017 Steering Group meeting, and an updated risk list will be produced based on the outcomes.

Id	Description	Probability	Impact	Priority	Responses	Person responsible
1	Insufficient commitment from national providers, either financial or technical.	H	H	1	Involve national providers. Keep open communication.	Project manager
2	Key persons or required competences not available	L	M	6	Identify gaps in competences early and start finding replacements, or training current persons.	Project manager

3	Processes do not conform to national requirements	L	H	3	Consult experts on national requirements during the project to make sure they are addressed correctly	Project manager
4	User communities or researchers not interested in resource sharing	L	H	3	Maintain the good relations through open communication and interaction.	Project manager
5	VAT issues	M	H	2	Determine VAT processes and mechanisms	Project manager and steering group
6	Ministry approval	M	H	3	Prevent from delay - involve ministry in advance	Steering group

8.2. Risk management

The identified risks are followed and action should be taken proactively if realization of specific risk looks possible. Moreover, the project environment is monitored through frequent stakeholder interaction and possible new risks will be identified and mitigation strategies for them are planned. The risk list will be updated annually by the project manager.

9. Project cost estimate

The main cost item of the project is the personnel costs. The volume of the project will be 1 FTE annually for one year and then possibly 2 FTE per national provider for two years, plus the project manager (currently 50% of working time). Contracting external experts may bring an additional 3 person months / year for the project costs.

Other costs for the project are travel costs and meeting costs. Travel costs are expected to be in the range of 30,000 EUR annually, which roughly allows each project member to travel to two project meetings each year. The meeting costs are smaller, estimated at 5000 EUR per year, corresponding to organising a project all-hands meeting as well as several smaller meetings. The costs are from meeting room rental, refreshments and meals. In addition, 5000 EUR per year is budgeted for social activities in connection with the meetings, such as dinners and recreational team building activities, networking dinners, and small purchases for the project.

In summary, **annual** budget for each of the project years is:

- Project experts: Phase 1: Year 1 has up to 2 FTE personnel costs across all sites (50% / 50% funding from the national providers and NeIC)
- Project experts: Phase 2: 2.5 year have approximately 1 FTE personnel costs per provider per year (50% / 50% funding from the national providers and NeIC). Exception here is for Iceland that provides 0.5 FTE.
- Project manager: both phases have 0,5-1 FTE personnel costs (funded by NeIC)
- External consultants: 1 PM service purchase costs (funded by NeIC)
- Direct costs: 40,000 EUR, consisting of (funded by NeIC)
 - Travel costs: 30,000 EUR
 - Meeting costs: 5,000 EUR
 - Other costs: 5,000 EUR

The travel costs for the project are calculated. These costs are based on the previous experience in the NeIC E3DS project where it was seen to average 900 CHF per travel when travelling inside Europe and 1000 CHF per travel when all travels are averaged. The project is assumed to have two face-to-face meetings per year. One of these meetings is held during the NeIC All-Hands meeting in January of each year.

Kick-off meeting in Iceland Oct 2017.

6 members (2 resident)	4 x 600 Eur
Steering group members (1 resident)	6 x 600 Eur
Project Manager	900 Eur
	6900 Eur

Face-to-face meeting (location TBD) May/June 2018. 6 members + Project Manager

6 members (1 resident)	5 x 600 Eur
Project Manager	900 Eur
	3900 Eur

Face-to-face meeting (location TBD) May/June 2019. 6 members + PM

6 members (2 resident)	4 x 600 Eur
Project manager	900 Eur
	3300 Eur

Wrap-up meeting (location TBD) December 2019? 6 members + PM

6 members (? resident)	6 x 600 Eur
Project manager	900 Eur
	4500 Eur

Other travel expected for the Project Manager, assuming two travels per month. This uses the overall travel cost average

2 travels/month x 1000 Eur/travel x 12 months/year = 24000 Eur/year

Projected travel costs per year

2017

Kick-off meeting: 6900 Eur

Other travels: 8000 Eur

Total 14900 Eur

2018

Face-to-face meeting: 3900 Eur

Other travels: 24000 Eur

Total: 27900 Eur

2019

Face to face meeting: 3300 Eur

Wrap-up meeting: 4500 Eur

Other travels: 24000 Eur

Total: 31800 Eur

10. References

< List all documents to which the project plan refers. There should be references to the documents that are the basis for the project preparation, such as e.g. "Business case" and "Project directive". References can also be made to documents that describe the working methods of the project, such as e.g. the Production model.>

Ref no	Document name, designation	Edition, date
1	Dellingr project directive https://wiki.neic.no/w/ext/img_auth.php/9/91/170111-Dellingr_Phase_1_Collaboration_Agreement_Signed.pdf	
2	Dellingr Phase 2 approval:	

	https://wiki.neic.no/wiki/Dellingr-SG-meeting-2017-05-31	
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