PaNdata ODI

Deliverable D1.1

Project management structures, reporting, risk and quality management procedures

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Abstract

This report defines the procedures and mechanisms to be followed in the PaNdata ODI project to ensure good quality results and to manage risks. The procedures deal with reporting (both externally to the EC and internally between project partners), risk management, and quality control, and are designed to be appropriate to a project of the size and nature of PaNdata ODI.

Keyword list

PaNdata ODI, Project management, Reporting procedures, Risk management, Quality control

Document approval

Approved for submission to EC by all partners.

Revision history

Issue	Author(s)	Date	Description
0.1	Simon Lambert	8 Dec 2011	First complete draft
	Juan Bicarregui	15 Dec 2011	Minor corrections
	Simon Lambert	16 Mar 2012	Minor edits; revision of section on software
	Juan Bicarregui	19 Mar 2012	Approved by all partners and ready for release to EC

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1 Introduction

This deliverable is produced as part of Work Package 1 of the PaNdata ODI project. Work Package 1 is concerned with management of the project, and the methodology defined in the Description of Work specifies five aspects that are part of the scope of management:

- An appropriate structure of boards, individuals and groups with clearly defined decision making powers and responsibilities.
- Meetings and other communication at suitable frequency and with clear purpose.
- Procedures for management of quality and risks.
- Defined reporting timetable to the EC.
- The Consortium Agreement for managing relations between project partners.

The first, second and fourth of these are aspects of reporting, that is, the formal aspects of communication between the parties involved in the project. The three activities of reporting, risk management and quality management—define a high-level way of working that is required to ensure effective conduct and monitoring of the project's progress, and that its outputs are of value and are produced in a timely fashion.

The procedures defined in this deliverable shall be applied:

- by all partners in the project;
- for all deliverables to the European Commission.

Partners will supervise and check the work performed by their own staff in accordance with the procedures. This deliverable should be interpreted with reference to contractual documents between the partners and the European Commission:

- the terms and conditions for European Commission (EC) contracts set out in the Grant Agreement and its annexes;
- the PaNdata ODI Description of Work.

2 Reporting procedures

2.1 Introduction

As indicated in the introduction, there are three aspects of reporting: to the European Commission and within the consortium through project boards and associated meetings. Although much communication takes place informally by emails and telephone calls, it is necessary to set up some formal procedures for communication within the consortium so that important issues may be raised and discussed in a timely fashion and by appropriate persons.

2.2 Formal arrangements

The Consortium Agreement made between the PaNdata ODI partners sets out principles of governance, for example the obligation to notify any significant information, fact, problem or delay likely to affect the project. It also defines a governance structure comprising the General Assembly, the Coordinator and the Management Support Team. Their responsibilities are defined as follows:

> *The General Assembly is the decision-making body of the Consortium.*
> *The Coordinator is the legal entity acting as the intermediary between the Parties and the European Commission. The Coordinator shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the EC-GA and this Consortium Agreement.*
> *The Management Support Team assists the General Assembly and the Coordinator.*

The Consortium Agreement specifies that meetings of the General Assembly shall take place at least once every six months and specifies the scope of their deliberations and how they will be conducted.

Operationally, the management structure is drawn from best practices in EU projects and the PRINCE2 project management methodology. It utilizes the principles of product-based planning, delegation of responsibility and exception-based reporting and is designed to ensure coherent scientific, administrative and financial coordination, while providing the participants with the support and tools required for the achievement of the project objectives.

The management structure will:

- establish reliable overall coordination and efficient and reliable communication between project partners and stakeholders;

- ensure timely and accurate handling of all the administrative and financial tasks connected with the activities of the consortium;
- monitor, coordinate and report on the progress of the various deliverables and support integration of results from discrete activities;
- provide equitable and effective methods for taking decisions and resolving conflicts;
- ensure compliance with the terms of the Grant Agreement and with the Consortium Agreement;
- refine and revise the project strategy, work plan and resource allocation where necessary through a Consortium Plan as defined in the Consortium Agreement.

2.3 Project monitoring and reporting

Project monitoring and reporting will be performed by means of:

- periodic progress meetings—these will normally coincide with General Assembly meetings but might be more frequent;
- periodic progress reporting—this is the formal procedure for reporting to the EC;
- review of main project milestones—this is conducted by the General Assembly during its meetings.

The periodic reporting documents sent to the European Commission are:

- D1.2 First Annual Management Report (M12)
- D1.3 Second Annual Management Report (M24)
- D1.4 Final management report (M30)

The following mechanisms will be established to implement effective communication and reporting within the consortium, in addition to the General Assembly meetings already mentioned.

- **"Virtual meetings"** using telephone conferences or online conferencing tools. These will be held every month and every partner will be represented if possible.
- **Face-to-face meetings.** The normal frequency for these will be every three to four months. These meetings may coincide with General Assembly meetings.
- **Internal mailing list.** An electronic mailing distribution list will be established for communication within the consortium.
- **Private website for exchange of documents and information.** A working area of the website will be established where partners, authorised by password access, may edit web pages and upload documents.

3 Risk management procedures

A central risk register will be created and managed by the Coordinator. Each member of the consortium can review it. Contingency plans and/or plans for corrective actions will be developed and implemented for all identified risks. The risks will be a subject for discussion at meetings of the General Assembly.

The initial register of risk is given below.

Risk	Incompatible requirements across research infrastructures (RIs)
Type	Internal
Description	If the requirements across the RIs are too diverging, agreement between the RIs may not be possible.
Probability	Low
Impact	High – may lead to blocking situations
Prevention	Close cooperation between facility managers and the project management board. Since the RIs are working in similar fields, the requirements should be similar.
Remedies	Standards may be developed which partially cover all aspects and with more detailed specialisations and mappings for a particular facility.

Risk	Change in internal funding levels or funding relationships for partners
Type	External
Description	Changes in government priorities or Strategic reviews of funding adversely affect partner's ability to deliver on project deliverables.
Probability	Low
Impact	High
Prevention	Open discussion of likely or upcoming internal discussions or policy changes.
Remedies	Memorandum of Understanding for the project.

Risk	Incompatible policies across facilities
Type	Internal
Description	If common policies cannot be implemented, then the integration of the catalogues from the facilities may be partial, giving different levels of information from different facilities, and potentially reduce the usefulness of the catalogues and the impact of the project.

Probability	Probability: Low – medium
Impact	High – reduced exploitation chances
Prevention	Close cooperation between facility managers, early adoption of common policies, appropriate information and dissemination with facilities.
Remedies	Policies may be developed which cover all aspects of the catalogues but are applied only to certain scientific domains or to a specific user community.

Risk	Low acceptance within the scientific community
Type	Internal and external
Description	
Probability	Low – medium
Impact	High – reduced exploitation chances
Prevention	Early dissemination of standards and policy results to the wider scientific community so they can influence design decision. Service trials and evaluations with end-user base to they can influence design decisions. Frequent communication on the added value of PaN-data. Organisation of demo events.
Remedies	Analyse and improve communication and dissemination strategies

Risk	Low adoption of the data standards and data policy outside the consortium.
Type	External
Description	Adoption of standards and innovation is always difficult for an academic group requires a concerted effect to promote the benefits to all stakeholder communities.
Probability	Medium – High
Impact	Medium
Prevention	Identify the key stakeholders Build specific communications strategy for different user communities. Cost benefit analysis for user communities that will drive adoption. Actively selling the benefits to user community. Analyse adoption rates and what drives adoption.
Remedies	Iterate the adoption plan when required

Risk	Insufficient level of collaboration
Type	Internal and external
Description	

Probability	Low-medium
Impact	Medium (redundant work implying wasted efforts and insufficient visibility and impact of PaN-data in Europe
Prevention	Frequent coordination meetings, staff exchange, close monitoring by the project management board.
Remedies	Analyse reasons for insufficient collaboration and revisit the collaboration plan.

Risk	Performance below expectations
Type	Internal
Description	If the performance of one or several services is too low, the user community will not adopt the functionalities.
Probability	Medium
Impact	Medium – adoption of the services in only some of the RIs, or only between some of the RIs.
Prevention	Strong involvement of the IT responsible of each participating RI. Early tests and performance optimisations.
Remedies	Regular follow up

Risk	Incompatible pre-existing IT infrastructures across Research Institutions
Type	Internal
Description	If the existing IT infrastructures across the facilities have different incompatible architectures and systems, it may be difficult federating them, thus causing delay.
Probability	Low
Impact	Medium
Prevention	Close collaboration between facility IT managers. Early identification of incompatibilities, mutual visits.
Remedies	Work-arounds and specific implementations could be required.

Risk	Security systems incompatible across RIs
Type	Internal
Description	If the existing IT infrastructures across the facilities have incompatible security architectures (e.g. firewalls, authentication systems, policies), then federating them may be difficult.
Probability	Low
Impact	Medium
Prevention	Close collaboration between facility IT managers. Early identification of incom-

	patibilities, mutual visits.
Remedies	Work-arounds could be required.

Risk	Security breach on existing infrastructure.
Type	Internal
Description	Some partners already have existing IT infrastructure in place, if there was a public security breach or loss of data on existing infrastructure this could compromise the wisdom of central federated data catalogues.
Probability	Low
Impact	Medium
Prevention	Security audits and monitoring of existing infrastructure
Remedies	Fix any theoretical security exploits as a priority.

Risk	Emergence of a dominant standard in this area from another group
Type	External
Description	Although we feel that the consortium is world leading in the field at data cataloguing and standardisation of data formats for large scale facilities, this does not rule out competing academic or commercial groups producing alternative solutions.
Probability	Low
Impact	Medium
Prevention	Horizon scanning for emerging work in this field.
Remedies	Collaboration to ensure core interoperability.

4 Quality management procedures

4.1 Quality organisation

The PaNdata ODI project is relatively small and comprises organisations of equivalent type across Europe (bodies operating research infrastructures with photon and/or neutron facilities). Therefore a heavyweight quality management procedure is not appropriate. However there is a need for quality checking of documents that are to be made public, to provide assurance that they are fit for purpose and they represent the positions of all members of the consortium.[1]

In order to provide a distributed quality organisation and a strong co-ordination, the quality organisation will be implemented by a Project Quality Officer (PQO), who is *ex officio* the WP1 leader and therefore part of the Management Support Team. The Project Quality Officer is responsible for establishing the project quality system and assuring adherence to it. In the initialisation phase of the project, the PQO defines the quality standards for the project and supports the project team to apply the defined procedures, tools, documents and templates.

To assure quality, the main role of the PQO consists of regular monitoring of the application of the quality procedures through actions such as verification of documents, participation in reviews and audits, and follow-up of corrective actions. This role is performed throughout the project lifecycle.

4.2 Document quality procedures

Internal Documents. It is considered that there is no need for a formal quality control procedure on internal documents. The objective of these is to stimulate discussion and disseminate ideas, and it would be inappropriate to introduce a rigorous quality control stage that would only slow down the communications within the consortium and in any case would probably be conducted by those who would be the target readership of the document.

External Documents. There is, however, a need for a quality procedure for external deliverables, destined for the European Commission and the world at large. Before its delivery to the European Commission, each deliverable will undergo an internal review. The first step of the review will be conducted at the Work Package level, whereby the WP leader will appoint two reviewers for each deliverable. These will be chosen among all participants to the WP who are not affiliated to the institution which is leading the WP. The review will assess that each deliverable is consistent with the project objectives. The Work Package leader will then release the deliverable for approval.

[1] The Consortium Agreement sets out procedures in case of disagreement or conflict between partners.

After review within the WP, the draft deliverable must be distributed to the General Assembly. Members of the General Assembly must make their comments on this draft within five working days, directly to the author and the Work Package leader. The author must submit a revised draft to the General Assembly list within the next five working days. The process may iterate. On final approval, the Coordinator is responsible for submission to the European Commission.

The final version of a document has to be checked by the PQO in order to assure the consistency and the compliance of the deliverable with the requirements and with the project rules.

Each deliverable must have a record of its revisions as it progresses through the above process, but it is not necessary to have formal identification of status. The table in the deliverable template will be used to record the revisions informally.

In the interests of consistency, a standard naming convention will be used for the file names of deliverable documents. This will take the form:

PaN-data-D*N-M*

where *N* and *M* are the numbers identifying the deliverable in the Description of Work. When the deliverable is still under production, the file name may be followed by an identifier of its version number, e.g. *v02*.

A standard deliverable template (Word file) will be used to ensure consistency of presentation. This will also include a standard title page, space for an abstract and revision history.

5 Software quality assurance

This section serves as a brief guideline to good practices involved with software quality assurance. Goals are intended to improve quality in terms of robustness, maintainability and extensibility. The procedures are intended to be lightweight and appropriate for the scale of the project.

5.1 Testing guidelines

The aim of testing is two-fold:

- To detect errors in the system as early as possible, when they are least expensive to correct.
- To judge if the program is usable in practice. But testing can only demonstrate the presence of errors, not the absence of them. However, since exhaustive testing is not feasible, tests must be carefully designed to capture the maximum number of errors in the most cost effective way. Well thought out testing should lead to confidence in the product.

Testing, far from being an add-on, encompasses a wide range of activities and is an integral part of the software process throughout its life cycle.

The different stages of testing are outlined below. For each stage of the testing process, the WP responsible for the test should internally perform the tests before delivery.

The tests must be written early in the development life cycle as shown below:

- System Specification: Validation tests
- Sub-system Design: Integration tests
- Detailed Design: Unit tests

The process of writing the tests also acts to validate and verify the documentation. One of the main aims of writing tests early in the development life cycle is to prevent the propagation of errors.

Unit testing

Unit testing ensures that the individual modules or units operate correctly. This is done independently of other system components and usually performed by each coding team. Each unit is tested by the person responsible for its coding. The aim of the unitary test of the unit is to check that it works as designed. The unit tests of others units linked with the tested units can be executed, where the behaviour of more and more complex sub-systems is verified. Many of the errors that arise here do so because of problems with the interface between these modules.

Components are tested using a bottom-up testing strategy. This method allows integration of components during the unit tests phase.

Sub-system and integration testing

Sub-system and integration testing are used to test the interfaces and the interactions of each sub-system with other sub-systems. Test cases should be provided to test sub-systems or the system in his whole. These tests are performed by each WP team independently of other sub-systems before delivery. The approach for integration tests is similar as unit test approach as described before.

Validation testing

Validation testing occurs when the sub-systems have been integrated to complete the system. Use cases programs should be provided by applications to test the system as a whole.

Validation testing is often done by two different means:

- Validation testing to compare the software to its specifications.
- Deliverable testing, to make sure that the deliverable is “requirement conformant”.

5.2 Software quality control

The aim of quality control is to enable and control the development and production of software deliverables compliant with the characteristics and the requirements defined for the project. The WP Managers are responsible for the control of internal and external deliverables.

Quality control will be based on tests or inspections or in response to reports of errors. The results of the test or inspection or the error report are recorded and returned to the person responsible for the product. Then the producer of the product has to respond as follows: either the remarks are not justified, or the remarks must be addressed and the product corrected. The form is returned to the author of the inspection and a new review of the product is performed, but only on those elements identified by the first inspection.