TECHNICAL REVIEW REPORT

Research Infrastructures

Project acronym:	ViBRANT
Project title:	Virtual Biodiversity Research and Access Network for Taxonomy
Grant agreement number:	261532
Funding scheme:	CP-CSA
Project starting date:	01/12/2010
Project duration:	36 months
Coordinator:	Vincent Smith
Project web site:	http://vbrant.eu

Period covered by the report:	Period No. 1, from 01/12/2010 to 30/11/2011
Place of review meeting:	Brussels
Date of review meeting:	31/01/2012
Experts:	Barbara Aronson
	Jessie Kennedy
	Tom Dedeurwaerdere
Project officer:	Krystyna Marek (absent)
Project Officer present in the meeting:	Carlos Morais Pires

Individual report	☐
Consolidated report	☒

European Commission
Information Society and Media

SEVENTH FRAMEWORK PROGRAMME

1. OVERALL ASSESSMENT

a. Executive summary

ViBRANT is a very important project which fits extremely well into the FP7 e-Infrastructure Capacities programme. The accomplishments of the project in the first year are outstanding and the project clearly attains the objectives of this period. In particular, we welcome the following general accomplishments in regard to the project's general goal of making the data and information output of biodiversity science more integrated, accessible and accountable:

- The project has been able to pool together various disparate projects and initiatives related to data and information integration and dissemination, by channelling them through a common infrastructure covering often disjointed aspects such as visualization, legacy data capture and publications. This is also reflected in the excellent integration amongst the work packages;
- In addition to the project deliverables and the project website, the outreach and dissemination of the first years' work have been greatly expanded by publication of the project results in a special issue of the open access peer reviewed journal ZooKeys, with 20 contributions on the various aspects of the project, including (commendably) a number of papers by authors from outside the project who are using ViBRANT technology (Vincent Smith and L. Penev (eds.), 2011. e-Infrastructures of data publishing in biodiversity science. *ZooKeys* Vol. 150 ;
- A clear sign of the early success of the project is the success of the ViBRANT ambassadors' network initiated through WP3, which has been able to attract people from outside the project and from many disciplines beyond the projects' initial scope.

The quality of the project was also reflected in the reporting, which was consolidated in the First Year Project Review, and in the well-targeted allocation of the financial resources.

b. Recommendations concerning the period under review

The deliverables and the first year project review submitted represent solid, strong progress and we highly commend the work done.

c. Recommendations concerning future work

We congratulate the project on its progress, including some progress that is ahead of the planning. As said in our opening statement, when the project will be fully deployed it has the potential to become a crucial node in the overall e-infrastructure for biodiversity data, offering high added value for both "grey" and peer reviewed open access publishing of data and literature. The high level of integration of this node with other nodes of the e-infrastructure for biodiversity data, based on common standards and

mutual benefits, might potentially also constitute an interesting prototype providing inspiration for other e-science infrastructures.

d. Assessment

☒ Excellent progress (the project has fully achieved its objectives and technical goals for the period and has even exceeded expectations).

☐ Good progress (the project has achieved most of its objectives and technical goals for the period with relatively minor deviations).

☐ Acceptable progress (the project has achieved some of its objectives; however, corrective action will be required).

☐ Unsatisfactory progress (the project has failed to achieve key objectives and/or is not at all on schedule).

2.   OBJECTIVES and WORKPLAN

a.   Progress towards project objectives

Assess to what extent the objectives of the project for the period have been achieved. In particular, please indicate if the project as a whole has been making satisfactory progress in relation to the Description of Work (Annex I to the grant agreement) and comment on the interaction between the work packages and the level of integration demonstrated.

The first years' work has led to excellent progress towards the objectives. In addition the work resulted in a strong interaction and integration amongst the work packages and project components.

b.   Progress in individual work packages

For each work package (WP), assess the progress in relation to the Description of Work (Annex I of the grant agreement). Please also report and comment on any delays, reasons for them and any remedial action taken. Specify the work packages concerned.

Work package 1: Overall management
The aim of the management work package is to provide full transparency and control of the entire project to the consortium and to the EC. We welcome the very active and effective management of the project. In particular, the management committee has been very effective in assessing the evolution of the projects' milestones and deliverables. In addition, the management committee has provided the necessary discussion forum for adjusting the project tasks that depend on evolution of other projects and organizations (such as GBIF, Pensoft, CiteBank etc.). Given the challenges in personnel appointments they have also adjusted the workload and associated finances effectively across the partners to ensure the project has maintained good progress.

Work package 2: Technical architecture
Major progress has been made under work package 2, in spite of the decision to move the scratchpad platform from Drupal 6 to Drupal 7, which will become effective in the beginning of year 2. The decision for this move, which was not announced in the original list of deliverables, was made early on in year 1, in order to guarantee that the scratchpads' software would not become outdated at the end of the project. The move to Drupal 7 has meant that some of the work planned for year one for the end users was delayed, however the pros from moving to Drupal 7 outweigh the cons of staying with Drupal 6 and longer term sustainability and improved functionality will be more easily achieved as a result. The deliverables are highly interconnected and this change did not affect any of the deliverables for year 1, however the team should review the status of deliverable 4.1 into which this WP fed to ensure any additional features of scratchpad 2 have been considered.

Work package 3: Training, outreach and community support
Training and community outreach (task 3.1 and 3.2) has been very active in the first year of the project. Six training sessions were organized in the first year and a detailed agenda for the second year has already been established. Training materials have been integrated in the scratchpad online help desk and tutorials. A major challenge in this context will be to integrate these task specific training materials, available through the online environment, in a consolidated format that can be used for the training sessions.

A user survey on technical issues (under task 3.3.) has been organized at the end of year 1. The results of this survey will be released early in year 2.

Preliminary user surveys on community involvement have also been initiated under task 4.1 and published in the special issue of ZooKeys mentioned above. These surveys should be able to assess, later on in the project, what impact ViBRANT has on the various information provider and user communities. One issue that will be examined for example is the increase in cases of co-authorship in publications as a consequence of becoming part of the scratchpad user communities.

Where possible extending the Ambassador programme through links into Universities teaching the new generation of systematists would enhance the future uptake of scratchpads and the work from the project.

Work package 4: Standardisation
The activities under Task 4.1 (ontology platform) in year 1 have set the stage for the further linkage of the Scratchpad infrastructure to the GBIF ontology platform. The role of the GBIF Task Group on Metadata Implementation was crucial in this process. The GBIF task group provided an assessment of the limits of the pre-vibrant scratchpad vocabulary and identified the next steps to improve this vocabulary. A first milestone in this process has been the migration, in the beginning of year 2, of the GBIF Vocabulary Service from NHM Scratchpad to GBIF.
Major accomplishments under this work package are the implementation of the scratchpad export module, including the export to the Darwin Core Archive format. This module will be further improved in year 2. During discussion it was agreed that the team should keep the Darwin Core Archive format under review to ensure it satisfies all of the requirements of the project.

Activities under task 4.3 overlap partially and complement the activities under task 4.1 and task 4.2. The goal of these activities is also to build controlled vocabularies, but through a different, complementary methodology, based on community driven wiki's on standards.

Work package 5: Interaction and services
The main task under this work package in the first year was to build the middleware layer, which will make it possible to connect the scratchpad user interface to various API web-services. For this middleware layer a service has been mounted called OBOE (Oxford research centre Batch Operation Engine). In year 1, code has been written for OBOE and various web-services and tools have been developed, such as GeoCAT (to geo-locate IUCN Red List threatened species), which have already raised major interest from various user communities. Given the interest shown by IUCN, we would encourage work package 5 to collaborate with package 6 to disseminate the results of GeoCAT.

Work package 6: Scholarly publishing
Work in work package 6 is well advanced. Core objectives are the development of a workflow for publication of data from the scratchpads to the Pensoft family of journals (under task 6.1) and the development of a tool for the assignment of Globally Unique Identifiers to the taxonomic data (under task 6.2).

The main accomplishments during the 1st year reporting period is the development of the publication workflow with three main components : (1) a 5-step workflow for selecting data, adding metadata and previewing ; (2) XML submission, peer review and mark-up protocols for publication by Pensoft ; (3) export modules of the data components of the publication to Encyclopedia of life, to Zoobank, and to GBIF. Papers produced in component (1) of the workflow can be published in various platforms – so not necessarily in the Pensoft family of journals. However, at this stage, the export of data components from the publications to existing registries in the Encyclopedia of Life, Zoobank, and GBIF, with archiving in PubMed Central, is only currently being supported by the Pensoft family of journals.

The plan for next year is to develop a new biodiversity data journal, where data sets can be published early together with their metadata, with the view to allowing appropriate citation of the data. The major attractiveness of the system is the low cost for publishing a data article through this road and the possibility for early data release without losing the attribution benefits.

Work package 7 : Biodiversity literature access and data mining
The goal of WP7 is to build the "bibliography of life", by making use of semantic search, data-mining and mark-up techniques. Some delay of the work under WP7 was caused by the change in policy in CiteBank as explained in detail in deliverable D7.1. To adapt to this new situation, WP7 put together RefBank (building on an existing system developed under the Plazi platform). Major next steps for year 2 will be to develop mark-up modules (to annotate the literature) and develop various software tools for the RefBank repository, for further improvement of the bibliography. A major possible output of the WP7 repository is the collaboration within the EU project AgINFRA, for the integration of over 2,7 million bibliographic references in the scratchpads' infrastructure.

Work package 8 : Ecological and conservation data mobilization
The goal of work package 8 is to extend the capacity of the scratchpads into ecology and conservation science. The work under WP8 is well underway and some components are well ahead of schedule. Outreach to citizen scientists under task 8.1 has been particularly successful. In particular, 3 peer reviewed papers on citizen generated biodiversity data have already been published with the contribution of recreational divers who are members of the "Citizens Network for the Observation of Marine Biodiversity" created under the VIBRANT project. Major progress has also been made on the data quality improvement module, which is already released on the GBIF server. Further work on the other application modules is foreseen in years 2 and 3, but many components are well underway. In particular, the work under task 8.3 has been delivered well ahead of schedule.

c. Milestones and deliverables

Indicate whether the planned milestones and deliverables have been achieved for the reporting period (please give more detailed comments first and then fill in the summary table below).

The milestones and deliverables for this first year review period have been achieved.

STATUS OF DELIVERABLES			
No.	**Title**	**Status** *(Approved/Rejected)*	**Remarks**
D2.1	Distributing servers	Approved	
D3.1	Training strategy	Approved	
D4.1	Scratchpad common access point	Approved	
D4.2	Ontology tools	Approved	
D5.1	Prototype workflows and API	Approved	
D6.1	XML mark up tool and service	Approved	
D7.1	Community contributed bibliography	Approved	Deviations clearly explained and alternatives proposed / implemented
D8.1	Scratchpad modules engaging citizen scientists	Approved	

d. Relevance of objectives

Indicate whether the objectives for the coming periods are (i) still relevant and (ii) still achievable within the time and resources available to the project. Assess also whether the approach and methodology continue to be relevant.

The project's objectives, approach and methodology remain highly relevant and achievable.

e. For Networks of Excellence (NoEs) only

Assess how the Joint Programme of Activities has been realised for the period and whether all the planned activities have been satisfactorily completed.

N/a

3. RESOURCES

a. Assessment of the use of resources

Comment on the use of resources, i.e. personnel resources and other major cost items. In particular, indicate whether the resources have been utilised (i) to achieve the progress and (ii) in a manner consistent with the principle of economy, efficiency and effectiveness[1]. Note that both aspects (i) and (ii) have to be covered in your answer. The assessment should cover the deployment of resources overall and by each participant. Are the resources used appropriate and necessary for the work performed and commensurate with the results achieved? Are the major cost items appropriate? In your assessment, consider the person months, equipment, subcontracting, consumables and travel.

The presentation of the use of resources in the year 1 report and at the reviewers meeting was very clear and detailed. The project shows an overall sound financial management and a well-targeted allocation of the financial resources. Actual spent man months show only minor deviations (which have been duly documented and reported) and some gains have been made on the administrative costs for the projects.

b. Deviations

If applicable, please comment on major deviations with respect to the planned resources.

BGBM have had serious problems over staff recruitment and retention (developers) in the first year of ViBRANT. Although they have managed to meet all their commitments, they have not spent all the allocated resources. For WP4, it was agreed to transfer part of the BGBM funding, primarily to UPMC, who were underfunded as a result of budget restrictions in the project negotiation phase, and to JKI. This had no major impact on task 4.2, which was delivered, and is not expected to have any impact on the future deliverables. However, the project coordinator suggests doing a finer reality check of the impact of these budget changes on the future deliverables at the next meeting of the Management Committee.

The Royal Netherlands Academy of Arts and Sciences (In Dutch: Koninklijke Nederlandse Akademie van Wetenschappen, abbreviated: KNAW) was added as a Third party to Vereniging Voor Christelijk Hoger Onderwijs Wetenschappelijk Onderzoek en Patientenzorg (VU) to correct an anomaly with the employment status of one project member, Prof. Peter van den Besslaar. The purpose of the change was to allow proper payment for Prof. Besslaar's time, which in the Grant Agreement was funded at VU. The change affects VU's nominal budget, but has no other impact on the consortium.

In general, given the flexible management structure required by the integration of many heterogeneous communities, and the importance of these changes, the reviewers recommend putting a high priority on updating the task list and the timing of these tasks for the remaining two years. We think that such an update could be highly beneficial to the consortium after a first very productive year, as a means of stock taking and self-evaluation. This exercise should not necessitate a separate deliverable, but could be integrated in the presentation of the next overview report.

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[1] "The principle of economy, efficiency and effectiveness refers to the standard of "good housekeeping" in spending public money effectively. Economy can be understood as minimising the costs of resources used for an activity (input), having regard to the appropriate quality and can be linked to efficiency, which is the relationship between the outputs and the resources used to produce them. Effectiveness is concerned with measuring the extent to which the objectives have been achieved and the relationship between the intended impact and the actual impact of an activity. Cost effectiveness means the relationship between project costs and outcomes, expressed as costs per unit of outcome achieved." Guide to Financial Issues, Version 02/04/2009, p.33.

4. MANAGEMENT, COLLABORATION AND BENEFICIARIES' ROLES

a. Technical, administrative and financial management of the project

Assess the quality and effectiveness of the project management, including the management of individual work packages, the handling of any problems and the implementation of previous review recommendations. Comment also on the quality and completeness of information and documentation.

We welcome the very active and effective management of the project. In particular, the Management Committee has had an important role in monitoring the progress of activities within the consortium and providing a forum for discussing necessary adjustments. In particular, as stated above, the Management Committee has been very effective in assessing the evolution of the project milestones and deliverables and providing for the necessary flexibility for the tasks that depend on the evolution of standards and policies in other projects and organizations (such as GBIF, Pensoft, CiteBank etc.), which is especially challenging.

b. Collaboration and communication

Comment on the quality and effectiveness of the collaboration and communication between the beneficiaries.

As shown by the detailed report on the deliverables in this review, the collaboration and communication between the beneficiaries is very good.

c. Beneficiaries' roles

Give an assessment of the role and contribution of each individual beneficiary and indicate if there is any evidence of underperformance, lack of commitment or change of interest.

As shown by the detailed report on the deliverables in this review, the role and contribution of each individual beneficiary is appropriate and demonstrate overall a high level of commitment to the project.

5. USE AND DISSEMINATION OF FOREGROUND

a. Impact

Is there evidence that the project has so far had, and is it likely to have, significant scientific, technical, commercial, social or environmental impact (where applicable)?

When the project will be fully deployed it has the potential to become a crucial node in the overall e-infrastructure for biodiversity data, offering high added value for both "grey" and peer reviewed open access publishing of data and literature. High level "information" stakeholders have already shown interest in using the ViBRANT infrastructure for specific applications, such as the IUCN for the geo-location of endangered species or collaboration with the agINFRA project for the integration of Scratchpads with agriDrupal (an FAO initiative). The scope of the subject matter, and therefore of the potential impact, is international.

b. Use of results

Comment on whether the plan for the use of foreground, including any updates, is still appropriate. Comment also on the plan for the exploitation and use of foreground for the consortium as a whole, or for individual beneficiaries or groups of beneficiaries, and its progress to date.

N/a

c. Dissemination

Assess whether the dissemination of project results and information (via the project website, publications, conferences, etc.) has been adequate and appropriate.

The project provides active dissemination of the ViBRANT tools and content at various conferences and through an attractive project website. In particular, as mentioned above, the outreach and dissemination of the first years' work have been greatly expanded through publication of the project results in a special issue of the open access peer reviewed journal ZooKeys, with 20 contributions on the various aspects of the project (Vincent Smith and L. Penev (eds.), 2011. e-Infrastructures of data publishing in biodiversity science. *ZooKeys* Vol. 150.

d. Involvement of potential users and stakeholders

Indicate whether potential users and other stakeholders (outside the consortium) are suitably involved (if applicable).

Yes. It is particularly noteworthy, as mentioned above, that "ambassadors" from related disciplines have self-recruited to the outreach project of work package 3, and that authors from outside the ViBRANT consortium have contributed to the special issue of ZooKeys.

e. Links with other projects and programmes

Comment on the consortium's interaction with other related Framework Programme projects and other national/international R&D programmes and standardisation bodies (if relevant).

The ViBRANT infrastructure is highly integrated with other projects and programmes which actively contribute to the e-infrastructure for biodiversity data, based on the design of common standards across the projects and the building of mutually beneficial relationships. ViBRANT has a close interaction with many of these projects and programmes, such as LifeWatch, PESI, GBIF or Encyclopedia of Life.

6. OTHER ISSUES

If applicable, comment on whether other relevant issues (e.g. ethical issues, policy/regulatory issues, safety issues) have been handled appropriately.

N/a

Name(s) of expert(s):
> Barbara Aronson
> Jessie Kennedy
> Tom Dedeurwaerdere

Date: 05/02/2012

Signature(s):