Ref. Ares(2018)3820563 - 18/07/2018

Project Title	High-performance data-centric stack for big data applications and operations
Project Acronym	BigDataStack
Grant Agreement No	779747
Instrument	Research and Innovation action
Call	Information and Communication Technologies Call (H2020-ICT-2016-2017)
Start Date of Project	01/01/2018
Duration of Project	36 months
Project Website	http://bigdatastack.eu/

D1.1 – Project Management Plan

Work Package	WP1 – Project Coordination
Lead Author (Org)	Eliot Salant (IBM)
Contributing Author(s) (Org)	
Due Date	31.03.2018
Date	31.03.2018
Version	V1.1

Dissemination Level

X	PU: Public (*on-line platform)
	PP: Restricted to other programme participants (including the Commission)

	RE: Restricted to a group specified by the consortium (including the Commission)
	CO: Confidential, only for members of the consortium (including the Commission)

Versioning and contribution history

Version	Date	Author	Notes
V1.0	31.03.2018	Eliot Salant (IBM)	
V1.1	18.07.2018	Eliot Salant (IBM)	Modifications as requested by Milan Popovic

Disclaimer

This document contains information that is proprietary to the BigDataStack Consortium. Neither this document nor the information contained herein shall be used, duplicated or communicated by any means to a third party, in whole or parts, except with the prior consent of the BigDataStack Consortium.

Table of Contents

1. Executive Summary

This report is the first version of a summary of project management techniques to be used in running BigDataStack, including procedures for communication, documentation, deliverables review, procedures to control project progress, and risk management.

This document should be considered a living document, and procedures may be added or amended over the course of the project.

2. Overview

A project with as many partners as BigDataStack can be a challenge to properly manage. Through the experience of many years of managing EU consortium projects, research projects and software development projects, a best practices of project management tools and techniques has emerged, which this document will attempt to capture.
The guiding pillars to managing a successful project include:

1. Creating the proper environment for the flow of information in the project.
2. Close collaboration with the Scientific Coordinator.
3. Careful tracking of the project's process.
4. Risk management.
5. Quality control for both documentation and software.
6. Flexibility in face of a changing technology and marketplace.

The sections following will describe in more detail how each of these tenets will be achieved.

3. Details

3.1 Creating the proper environment for the flow of information

Information in a project flows both verbally and in written format. In both cases, the information needs to be captured and archived in an easily accessible format.

BigDataStack has started the project using the tools that follow to capture project information in written form. Note that these may change as the progress progresses if we find better alternatives.

Project wiki

BigDataStack has a project wiki which is used as a main tool used by the Project Coordinator for management. The wiki has sub-pages for each work package, and is typically used to hold meeting minutes, document templates, and general coordination information, such as the logistic details for face-to-face meeting.

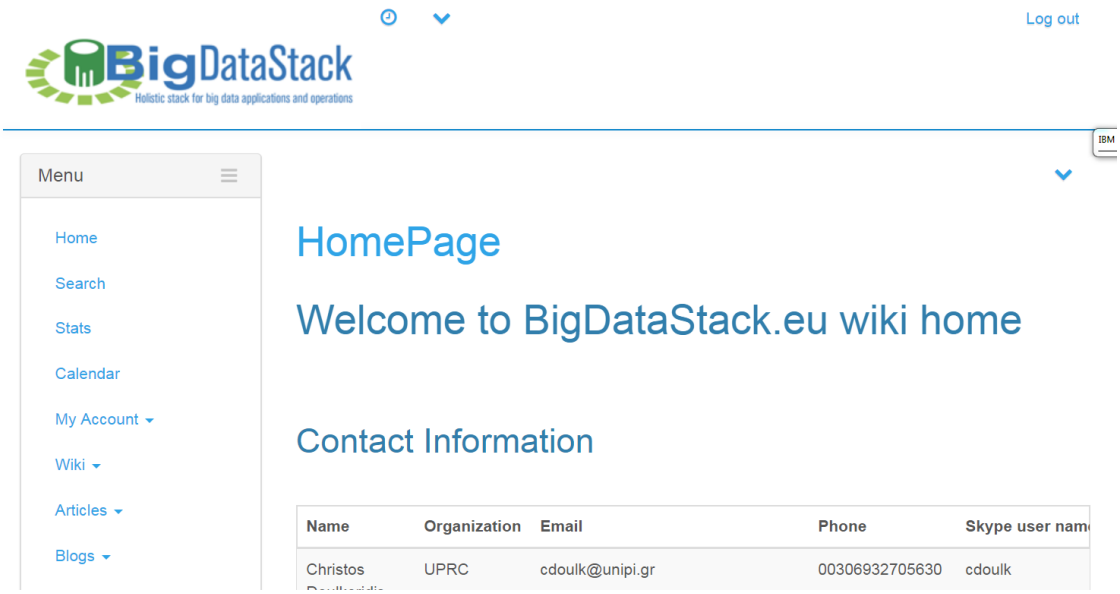

Figure 1: The project wiki

Document repository

The project uses *ownCloud* (https://owncloud.org/) as a repository for documentation, which proves to be a more flexible and easier to use platform than uploading documents to the wiki.

Monthly Management Reports (MMRs)

In order to allow the Project Coordinator to track the partner burn rate of resources, each partner organization is requested to submit a Monthly Management Report (MMR) at the conclusion of every monthly reporting period. This report summaries how many person-months were spent per task by each organization, as well as giving a brief explanation of what the effort was used for. While the understanding is that the MMR is not necessarily the organization's official resource reporting (which will

be presented to the Commission at the end of each reporting period), it is expected to be extremely close to the final numbers.

The Coordinator transcribes the MMRs into a master spreadsheet, which performs a number of tasks, such as graphically plotting the resources consumed per work package, as well as predicting partner spending at the end of the project, extrapolating based on the average spending of the last three months.

	A	B	C	D	E
1	BigDataStack - 779747	Short Partner Name	Beneficiary Number		
2		IBM	1		
3	Monthly Management Report for Period	Jan-18			
4	Activity Performed	Actual Work Performed (Man-months)	Task Number	WP Description	Comments
5	Work on use case	1.70	T1.2	Project Coordination	Peter, Paul, Mary worked on this
6	Requirements from component owners	2.10	T1.3	Innovation Management	John and Ringo
7			T3.5	Triple Monitoring and Quality Enforcement	
8			T6.3	Use case Adaptations and Experimentation	

Figure 2: MMR template

In addition to these tools, the Project Coordinator hosts monthly General Assembly teleconference calls to discuss non-technical issues with the partners. Typically, these calls address such management issues as the tracking of deliverables, updates on topics such as project participation in dissemination events, coordination of accreditation for authorship on consortium papers etc. Meeting minutes are kept on the project wiki.

As time progresses, the Coordinator may add an additional repeating call to track the progress of the technical artefacts according to the technical delivery schedule.

The Project Coordinator and Technical Coordinator will work in close cooperation to monitor the progress of deliverables, as well as set intermediate deadlines, such as for internal work package review, and cross work package review, to assure that deliverable schedules are met.

3.2 Close collaboration with the Technical Lead

Close collaboration with the BigDataStack Technical Lead (Dr. Dimos Kyriazis) is an integral part of project management. As such, regular bi-monthly teleconferences between the Project Coordinator and the Technical Lead are scheduled, and unplanned calls occur as required.

While the responsibilities for the Coordinator and Technical Lead are defined, not only are there overlapping areas which are jointly decided upon, (such as the year scope of work), but it is advantageous for the project in general for both leads to discuss, consult and advise one another on issues.

3.3 Tracking of Project's Progress

As described in Section 3.1 Creating the proper environment for the flow of information, mechanisms have been put in place not only to track resource usage, but also technical progress and other project related issues.

A more formal system for bug tracking may be put into use as the project develops.

3.4 Risk Management

Software projects are notorious hard to manage, and large, distributed projects across a multitude of partner are even more difficult. It is therefore extremely important that risks be anticipated at every stage of the project, with mitigation plans put into place.

While not all risks can be anticipated, the communication mechanisms previously described in this document can point to potential problems. For example, a low partner resource utilization can indicate staffing problems which may affect planned deliverables, but also a too high resource utilization can indicate that the partner is having trouble meeting its goals with the resources originally anticipated.

As part of any risk management program, it is important to understand which elements of the work plan are on the critical path and which ones are not. Elements on the critical path require stringent tracking – and the project will adopt bi-monthly or even week status teleconferences as BigDataStack evolves from architectural design to implementation around month six.

A comprehensive list of potential risks and their migration plans are detailed in the project proposal and DoA (section "Risks and Contingency Plans"). As of the date of this report, no risks on the critical path are anticipated, and as previously discussed, project progress is being closely tracked in order to get an early warning if it appears that a potential risk might develop into a real issue.

3.5 Quality control for both documentation and software

Ensuring a high level of quality for BigDataStack artefacts, whether documentation or software, is an important element to the success of the project, and separate quality control measures have been put in place for each.

Documentation quality control

The documents produced by the consortium as part of BigDataStack's deliverable obligations are all designated as public deliverables. As such, the quality of the documents, both from a content point of view and from a presentation point of view (e.g. correctness of spelling, grammatical correctness etc.), need to be high, as they are a public facing element of the project. It is required that there is a clear provenance for authorship within the documents, as the original author will be responsible for corrections that may result from reviews.

The formal review process for documents is as follows:

1. By no later than one month in advance of the document delivery date, an internal review of the document by the producing work package will take place. It is

the responsibility of the work package leader to assign reviewers and make sure that the process takes place and results documented and addressed. The internal review process is required to be completed with ten days. Upon completion of this review, there should not be any grammatical or typographical errors in the document.

2. Once a document has completed its internal work package review, it will be subject to cross work package review, where WP 2 reviews WP1, WP3 reviews WP2, …, and WP8 reviews WP1. The review process needs to be completed within one week, after which there is an additional week for the owning work package to make all required corrections and obtain the approval of the reviewer(s).

3. Once the document has passed cross work package review, the Coordinator will be notified. The Coordinator is then free to either post the deliverable to the Commission or reject it for corrections.

Software quality control

While BigDataStack is primarily a research effort producing a reference implementation, it is none-the-less important that the produced software be held to a high standard of quality control for several reasons, such as:

- It is expected that portions of the code will be upstreamed to on-going Open Source projects, and therefore the code needs to be reliable and well written.
- Since BigDataStack will be demonstrating an end-to-end solution, code which is fragile risks destabilizing the entire BigDataStack code base and will end up costing the consortium overall much wasted time in debugging.

To that end, when the project evolves to a further stage of development, methodology will be put in to place to assure that there is always a stable, running version of the end-to-end system, and a well-defined procedure for having new or modified code pass regression testing before being promoted to the main (stable) build branch.

3.6 Flexibility in face of a changing technology and marketplace

The cloud technical landscape changes quickly, and to stay relevant, projects cannot always remain locked in to their plans as envisioned in the original DoA. If significant technical deviations will be required due to the emergence of new, more appropriate technologies, or other reasons during the course of the project, the architectural team will be able to present the new work plans to the Coordinator. Upon a mutual decision with the Technical Lead, the Coordinator may then decide to submit an amendment proposal to make the changes official.

4. Conclusions

The main tools required to successfully manage BigDataStack were put in place in the first month of the project, and the planned management principles conveyed to the partners in the initial kickoff meeting.

This document will evolve as the project progresses in response to any changes in management tools or methodology.