D7.3

Innovation Management and Exploitation Plan

Work package:	WP7 Dissemination, Innovation Management and Exploitation	
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Executive Summary

This document details the strategy for innovation management and exploitation and comprises a detailed plan for its implementation in the scope of the Maestro project.

Contents

1. Introduction

This document details the strategy and implementation for managing innovation and supporting exploitation for the Maestro project (hereafter known as 'the Project').

Innovation management is a process which requires an understanding of both market and technical problems, with a goal of successfully implementing appropriate creative ideas. A new or improved product, service or process is its typical output. To support this process, the dissemination, innovation management and exploitation work package (WP7) is responsible for setting-up a directory for tracking innovations and exploitable results. Within this work package regular updates of this directory will be performed. Changes and trends will be reported to the Executive Board. The Maestro innovation management activities are supplemented by general knowledge and Intellectual Property management principles as agreed in the Consortium Agreement.

1.1 Document scope and objectives

The work package WP7 of the Maestro project covers the dissemination, innovation management and exploitation. The objectives related to dissemination are addressed in the Dissemination Plan [1]. As a result, the present document is concerned with innovation and exploitation, including intellectual property rights (IPR) management.

1.2 Intended target audience

The target audience of this document consists of the partners of Maestro which must adhere to the plans herein described.

2. Roles and responsibilities

2.1 Innovation and exploitation manager

The innovation and exploitation manager role is in charge of coordinating the writing of deliverable "D7.3: Innovation Management and Exploitation Plan" as well as the corresponding parts of "D7.4: Report on dissemination, innovation management and exploitation as well as standardisation".

The innovation and exploitation manager will also coordinate the activities needed to set-up, update and maintain a directory for tracking innovations and exploitable results. Such coordination will be done in collaboration with the Project Management Office of the Project in order to fulfill the terms of the Consortium Agreement in relation to innovation, intellectual property rights and exploitation.

2.2 Dissemination manager

This role is specified in the D7.2 Dissemination Plan [1]. In the context of this plan, it will be in charge of coordinating the communications with the partners in order to request information and send periodic reports about the progress of the project in terms of dissemination, innovation and exploitation.

2.3 Consortium partners

All partners must comply with all the Project requirements regarding innovation, intellectual property and exploitation. This is not limited to those specifically described in this document but also to other documents such as the Grant Agreement and Consortium Agreement. Any matters not covered by the aforementioned documents are subject to agreement by the Maestro consortium.

Partners must provide the different reports described in this document in a timely and proper manner.

3. Innovation management

Innovation is defined as the process, including its outcome, by which new ideas respond to societal or economic needs and demand and generate new or improved products, services or business and organisational models that are successfully introduced into an existing market or that are able to create new markets and that contribute value to society [2].

Following up that definition, innovation management is the overall management of all activities related to understanding needs, with the objective of successfully identifying new ideas, and managing them, in order to develop new products and services which satisfy these needs.

Although they may be assisted by the innovation and exploitation manager, partners are responsible for managing all innovation related activities including: rights to use background during and after project; capturing the results; assessing, protecting and managing the IP; dissemination (widely communicating the project outcomes); exploitation (use) of results; and market deployment. The innovation and exploitation

manager will maintain a directory of the final exploitable results of each partner. For this purpose, the procedure described later in this document will be used.

4. Exploitation plan

Exploitation consists of the utilisation of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities [2].

While dissemination is concerned with maximizing the impact of the Project and transferring its results to the ones that can best make use of it, exploitation focuses on making use of the results, recognising exploitable ones and their stakeholders to concretise the value and impact of the Project.

4.1 Stakeholder identification and exploitation strategy

As stated in the Grant Agreement, the aim of the Project is to create a data-aware and memory-aware middleware framework that addresses ubiquitous problems of data movement in complex memory hierarchies and at many levels of the HPC software stack. Its general availability and widespread usage represents the main exploitation goal of the Project. However, the development of the Project requires a variety of new technologies and techniques which may constitute exploitable items by themselves. Below we describe the three main groups of stakeholders that we have initially identified as relevant to Maestro:

- Project partners: Members of Maestro consortium include both industrial partners and publicly-funded partners that are interested in exploiting the results of the project in different ways:
  - Industrial partners include hardware components designers, component vendors and HPC hardware vendors (CRAY and Seagate), as well as SMEs (APPENTRA). Their involvement in Maestro is motivated by the development of new technologies that will increase their market competitiveness in the future, including software components that will be open source or proprietary depending on the business priorities of each partner.
  - Publicly-funded partners include HPC resources providers, also having the roles of application developers (JUELICH, ETH Zurich, and CEA), as well as weather centres (ECMWF). Their involvement in Maestro is motivated by providing their user communities with leading and highly-efficient HPC

facilities that enable solving world-class scientific, engineering and societal challenges.

- Direct users of Maestro middleware: Those who make use of the Maestro Application Programming Interface (API) to develop Maestro-enabled software that will run on HPC systems, including both applications and workflows. Examples are software developers, computational scientists and researchers.
- Indirect users: those users making use of Maestro-enabled applications and workflows, and who are the ultimate beneficiaries of the Project. This is by far the largest group of potential users. Maestro will focus on owners of applications that are Exascale candidates and for whom the solution of data problems is one of the primary technical considerations in preparation for Exascale. Maestro demonstrators were chosen to maximise impact, each being a production grade application in use by communities in Numerical Weather Prediction, Climate monitoring, Materials Science, Global Earth Modelling and Computational Fluid Dynamics plus data analysis.

4.2 Individual exploitation plans management

The Grant Agreement of the Project reflects the initial individual exploitation plan of each partner, which comprises the general, internal and external exploitation plans as well as the exploitation results envisioned by each partner. As stated in the Grant Agreement, once the Project enters the Phase 2 ("Development") at M12, partners are expected to keep their exploitation plans up-to-date through the procedure detailed below.
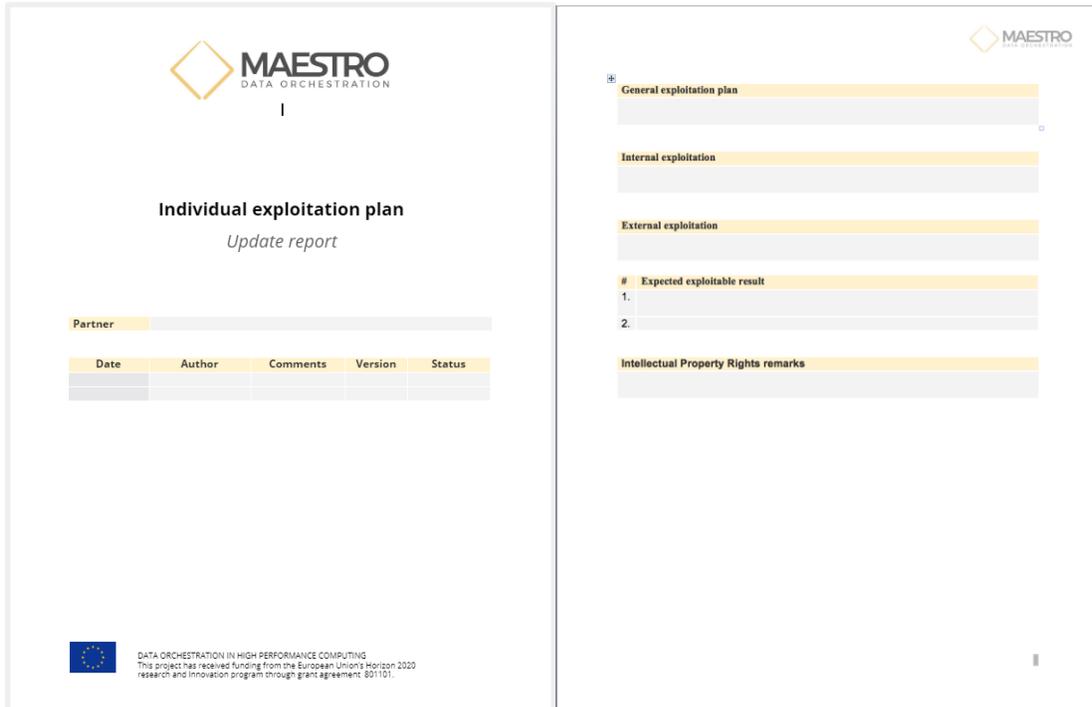
Partners are expected to report updates to their individual exploitation plans starting at M12 every 6 months. The first report will be an update of the individual exploitation plan described in the Grant Agreement, a first draft of which will be received by the representative of each partner in order to facilitate this first update. The last report update will take place right before the "D7.4: Report on dissemination, innovation management and exploitation as well as standardisation" derivable at M36. Each partner's update must contain the latest complete description of its individual exploitation plan, including:
- General exploitation plan;
- Internal exploitation (strengthening of partner position);
- External exploitation (to the market);
- Expected exploitable results; and
- Intellectual Property Rights remarks.

These updates will be coordinated by the exploitation manager who will contact the appropriate representative for each partner to request an update on its individual exploitation plan. In the absence of a report being received in the following two weeks, the previous exploitation plan will be considered as still valid and up-to-date.

In order to create the update report, partners must follow the individual exploitation plan update template available at our BSCW collaborative workspace as below:

- https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/d2986095/Maestro-individual-exploitation-plan-update-template%20.docx

4.3   Intellectual Property Rights Management

The IPR will be managed in accordance with the terms agreed by the partners in the Consortium Agreement. Maestro will endeavor to be fully open and to publish the results of the Project.

The following core principles have already been defined in the project proposal:
- Partners will exhaustively identify the background intellectual property they will bring to the project, and assess its availability for access rights as regards potential third parties' rights over such background.
- Ownership of results including joint results generated by two or more partners will go to the partners having generated such results.
- The owning partners will take all appropriate measures for the protection of the results capable of commercial or industrial exploitation, notably through intellectual property rights when relevant.

- All consortium members will agree that any confidential material supplied to the project will not be disclosed to any other party. The Consortium Agreement will bind the partners to this agreement.
- The partners will use their best efforts to exploit and disseminate the results, either directly or indirectly, for instance by out-licensing said results.
- Each partner will provide access rights (through licenses) to their background and results to the other partners for the implementation of the project and/or the exploitation of those other parties' own results (under fair and reasonable conditions).

In addition, as described in the proposal:
- The main Project result is the Maestro middleware which will be open-sourced. The specific open-source license is to be developed during the "Development" phase of the Project and shall be disclosed in the "D7.4 Report on dissemination, innovation management and exploitation as well as standardisation" deliverable.
- Interested parties (including partners) are free to develop proprietary products that serve or interface to Maestro as long as they comply to the Maestro open-source license and the IPR principles.
- Publications must adhere to the Open Access Guidelines for Scientific Publications. As a result, publications must either be self-archived or be published in open access journal publications.

The Project partners agreed on a Consortium Agreement that follows the DESCA model version 1.2. The most important choices and deviations that affect exploitation are:
- Option 1 for clause 8.2 Joint ownership
  - Joint ownership is governed by Grant Agreement Article 26.2 with the following additions:
  - Unless otherwise agreed:
    - each of the joint owners shall be entitled to use their jointly owned Results for non-commercial research activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and
    - each of the joint owners shall be entitled to otherwise Exploit the jointly owned Results, and to grant non-exclusive licenses to third parties (without any right to sub-license), if the other joint owners are given:
      - (a) at least 45 calendar days advance notice; and
      - (b) Fair and Reasonable compensation.
- Option 1 for clause 9.4 Access rights for exploitation
  - Access Rights to Results if Needed for Exploitation of a Party's own Results shall be granted on Fair and Reasonable conditions and upon written bilateral agreement.
  - Access rights to Results for internal research activities shall be granted on a royalty-free basis.

- ○ Access Rights to Background if Needed for Exploitation of a Party's own Results, including for research on behalf of a third party, shall be granted on Fair and Reasonable conditions and upon written bilateral agreement.
- Option 2 for clause 9.6 Additional access rights
  - ○ The Parties agree to negotiate in good faith any additional Access Rights to Results as might be asked for by any Party, upon adequate financial conditions to be agreed.

The innovation and exploitation manager will coordinate with the Project Management Office of Maestro in order to fulfill the terms of the Consortium Agreement in relation to innovation, intellectual property rights and exploitation. For this purpose, the individual exploitation plans of the partners will clearly detail any restrictions that apply to exploitable results in terms of IPR; this includes for example the name the software component, the project partner that is the owner, IP protection or license type (e.g., open source, proprietary).

5. Concluding remarks

This document defines the Innovation Management and Exploitation Plan of the Maestro project and it is concerned with the innovation, exploitation and intellectual property rights (IPR) areas of the Project. Partners are expected to manage innovation, comply to IPR principles and keep an updated record of their individual exploitation plans throughout the duration of the project.

6. References

[1] D7.2 Dissemination Plan https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/2792146
[2] Funding & tender opportunities glossary https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/glossary