

BD4OPEM

Big Data for OPen innovation Energy Marketplace

Deliverable D1.1

Quality Management Plan (QMP)

Document information

Deliverable nr	D1.1
Deliverable Name	Quality Management Plan (QMP)
Version	1.0
Release date	20/05/2020
Dissemination level	Public
Status	Submitted
Author	Ismael Bravo, Mònica Aragüés (UPC)



This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under **Grant Agreement No 872525**.

Document history:

Version	Date of issue	Content and changes	Edited by
1.0	23/04/2020	First version	Ismael Bravo
2.0	07/05/2020	Second version	Ismael Bravo
3.0	12/05/2020	Third version	Mònica Aragüés
4.0	19/06/2020	Fourth version. Updates implemented after peer review process	Ismael Bravo

Peer reviewed by:

Partner	Reviewer
ICOM	Isidoros Kokos
SUST	Nigel Claridge
SUST	Yasmina Ganse
ICOM	Ilias Lamprinos

Deliverable beneficiaries:

WP / task
All WPs and tasks

Table of contents

1	Executive summary	8
2	Introduction.....	9
3	Governance structure.....	10
3.1	Coordinating bodies (General Assembly and Core Group)	10
3.2	Work Package Leaders (WPL)	12
3.3	Task leaders (TL)	13
4	Working plan, milestones and resources.....	16
4.1	Reporting Periods	16
4.2	Project meetings	16
4.3	List of Milestones	16
5	Information exchange and communication	18
5.1	Language	18
5.2	Contacts list	18
5.3	Communications and information exchange	18
5.4	Documenting agreements and proceedings	18
5.5	Types of documents	19
5.5.1	Document owner	19
5.5.2	Contractual documents	19
5.5.3	Internal Documents	22
5.6	Naming conventions	25
5.7	Document Properties	27
5.8	Document change controls	27
5.9	Document archive	27
6	Quality Control.....	29
6.1	KPIs	30
7	Quality Commitment	31
8	Quality Management	32
8.1	Ensuring high standards on deliverables	32
8.2	Workflow	32

8.2.1 Producing a deliverable draft	34
8.2.2 Peer-review of a draft deliverable	34
8.2.3 Final deliverable	35
8.2.4 GA acceptance	36
8.2.5 Submitting to Sygma	36
8.3 Progress Reporting	36
8.4 Minutes for Quality Control	37
9 Risk Management Plan	38
9.1 Risk identification	39
9.1.1 Partner level	40
9.1.2 Work Package level	41
9.1.3 Decision body level	41
9.2 Risk log	41
9.3 Risk analysis	42
9.4 Risk assessment plan	43
9.5 Risk reduction	44
9.6 Risk monitoring	44
9.7 Process of re-iteration of the identification of risks	44
10 Conclusions	46
11 References	47
12 Appendix	48

List of Figures

Figure 1. BD4OPEM governance structure	10
Figure 2. BD4OPEM project meetings	16
Figure 3. BD4OPEM Shared repository	28
Figure 4. Quality Management process overview	33
Figure 5. BD4OPEM reporting schedule	37
Figure 6. Risk Management plan	39
Figure 7. Risk identification process	40

List of Tables

Table 1. Core Group members.....	11
Table 2. General Assembly members.....	11
Table 3. BD4OPEM Work Package Leaders.....	13
Table 4. BD4OPEM Task leaders	15
Table 5. BD4OPEM reporting periods	16
Table 6. BD4OPEM milestones	17
Table 7. Project documents identifiers (I).....	25
Table 8. Project documents identifier (II).....	25
Table 9. Denomination formats.....	26
Table 10. Risk assessment and implications	42
Table 11. Probability of risk and occurrence.....	43
Table 12. Risk assessment strategies	43

Abbreviations and Acronyms

Acronym	Description
CAg	Consortium Agreement
GAg	Grant Agreement
DoA	Description of Action
EC	European Commission
GA	General Assembly
CG	Core Group
PC	Project Coordinator
PO	Project Officer
QM	Quality Manager
FM	Financial Manager
TC	Technical Coordinator
EDM	Ethics & Data Manager
DCM	Dissemination & Communication Manager
IEM	Innovation & Exploitation Manager
SAB	Security Advisory Board
AB4DE	Advisory Board for Dissemination and Exploitation
TL	Task Leader
ToC	Table of Content
WP	Work Package
WPL	Work Package Leader

1 Executive summary

Deliverable D1.1 Quality Management Plan of BD4OPEM project describes the Management and Quality control processes to be used in the project, and in particular to ensure that the project will accomplish its objectives successfully. Moreover, the document covers all the steps, proceedings and individual responsibilities to guarantee high-quality results in accordance with the Description of Action. Also, it provides a Risk Management plan.

The governance structure chapter identifies the different project bodies, as well as the multiple Work Packages with their respective Work Package Leaders and Task Leaders. In addition, all the documentation required over the course of the project is reflected, and they are established in the Grant Agreement.

The Quality chapters assist in understanding the different indicators to be reached, describing the content and its owners, as well as the instruments needed to be able to perform such control.

The document also provides a risk management plan; identifying new risks, evaluating, analysing and assessing the risks, including a member responsible for each risk detected. Moreover, corrective actions and decisions are proposed in order to the correct deviations from the project implementation.

The annexes include relevant templates or information for the project implementation as well as essential definitions such as Key Performance indicators owners (KPIs) or deliverables peer-reviewers.

2 Introduction

The purpose of the document is to serve as a reference guide for midterm reviews and final reports to project partners, to gain an understanding of the main procedures for cooperation and management of BD4OPEM project. Hence, the present document contains the definition of the communication mechanisms, as well as procedures for Quality Control of Deliverables, which aim at achieving full success of the project.

3 Governance structure

The operational management structure, the organisational framework and the decision-making process arrangements, have been customised to the scale and sophistication of the project. As stated in the Action Description (DoA) [1], the Consortium has designed multiple governing bodies for the management, implementation, monitoring and supervision of the project. Those bodies are displayed in Figure 1 as well as their associations.

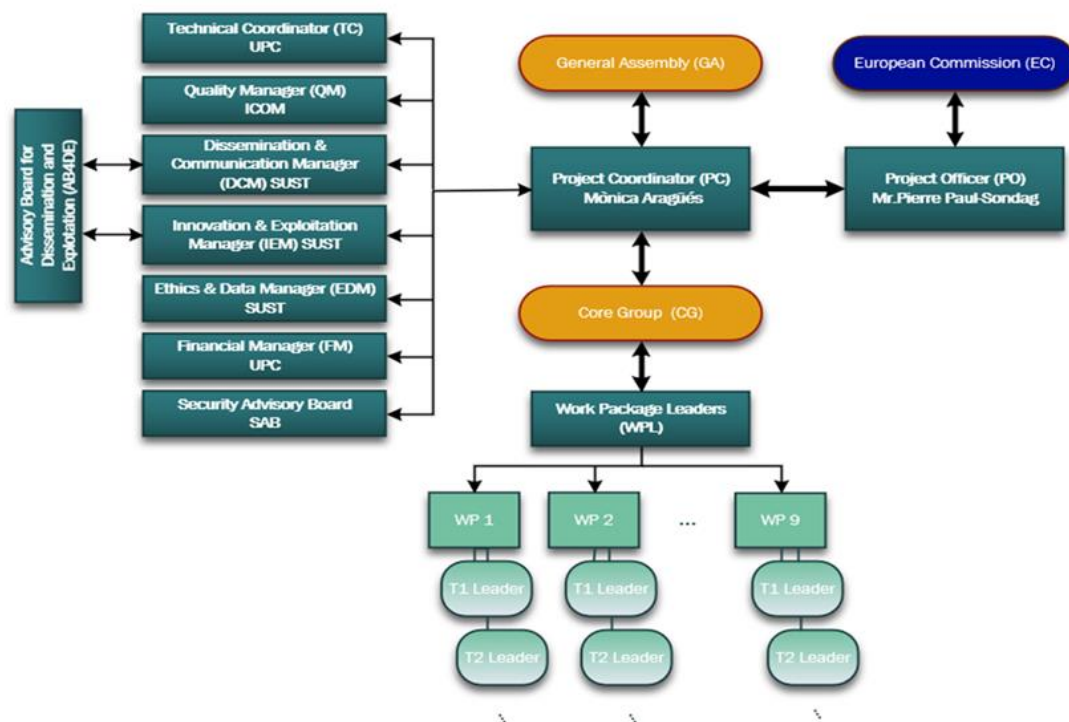


Figure 1. BD4OPEM governance structure

Also, as reflected in the DoA, the Consortium has decided the following bodies to be composed by:

- Advisory Board for Dissemination and Exploitation AB4DE: Sustainable Innovation will assemble and lead the board
- Security Advisory Board (SAB): WP5 tasks leaders

3.1 Coordinating bodies (General Assembly and Core Group)

The two main coordinating bodies of BD4OPEM are the General Assembly and the Core Group.

On the one hand, the **General Assembly (GA)**, is the highest body of the BD4OPEM consortium and is composed of one representative of each partner. On the other hand, the **Core Group (CG)**, is composed of the WP leaders, led by the PC.

The General Assembly and Core Group bodies have been formed as described below:

Core Group members		
Partner	WP	Core Group
UNIVERSITAT POLITECNICA DE CATALUNYA (CITCEA-UPC)	WP1	Mònica Aragüés
WE PLUS SPA (WEP)	WP2	Alessandro De Roma
INTRACOM SA TELECOM SOLUTIONS (ICOM)	WP3	Isidoros Kokos
UNIVERSITAT POLITECNICA DE CATALUNYA (CITCEA-UPC)	WP4	Pau Lloret
ATOS SPAIN SA (ATOS)	WP5	Ross Little
WE PLUS SPA (WEP)	WP6	Amit Eytan
ODIT-E (ODT)	WP7	Luc Richaud
SUSTAINABLE INNOVATION I SVERIGE AB (SUST)	WP8	Nigel Claridge
SUSTAINABLE INNOVATION I SVERIGE AB (SUST)	WP9	Yasmina Ganse

Table 1. Core Group members

General Assembly members	
Partner	Name
UNIVERSITAT POLITECNICA DE CATALUNYA (CITCEA-UPC)	Mònica Aragüés
WE PLUS SPA (WEP)	Amit Eytan
ODIT-E (ODT)	Albert González
ATOS SPAIN SA (ATOS)	Javier Valiño
INSTITUT JOZEF STEFAN (JSI)	Mihael Mohorčič
INTRACOM SA TELECOM SOLUTIONS (ICOM)	Ilias Lamprinos
NUVVE DENMARK APS (NUV)	Mogens Løkke
OSMANGAZI ELEKTRİK DAGITIM ANONİM ŞİRKETİ (OEDAS)	Ural Halaçoğlu
VRIJE UNIVERSITEIT BRUSSEL (VUB)	Maarten Messagie
ESTABANELL Y PAHISA ENERGIA SA (EyPESA)	Ramon Gallart
ELEKTRO CELJE D.D. (ELCE)	Anton Kos
SUSTAINABLE INNOVATION I SVERIGE AB (SUST)	Yasmina Ganse

Table 2. General Assembly members

Their corresponding duties are defined in the DoA. Moreover, their specific roles can be found in the Consortium Agreement (CA) [2], covering the following points:

- Consortium members
- Responsibilities of partners
- Meetings (representation, convening)
- Preparation and organisation of meetings
- Voting rules and quorum
- Veto rights
- Reporting and Minutes of meetings

3.2 Work Package Leaders (WPL)

Responsibility for the management of each work package is given to the designated partner, who appoints one person as the head of the work package (WPL), according to the work plan.

The WPL is in charge of the coordination of the work done by all the participants in the Work Package, ensuring the adequate progress of the technical activities of a specific WP. Moreover, each WPL should produce a monthly report with the inputs of the partners collaborating in the WP he/she leads, which is uploaded to the dropbox project repository (see section 5). In addition, the WPL will have to present the progress of the Work Package, when required by the GC or the GA. The quality responsibility for each deliverable lies primarily with each WPL.

The Consortium's first activity was to appoint the corresponding Work Package Leaders, as they are the highest-level responsible for the technical work within each Work Package.

The following table shows the corresponding WPL for each WP.

	Work Package	Partner	WPL
1	Coordination and Management	CITCEA-UPC	Mònica Aragüés
2	Overall BD4OPEM Open Innovation Architecture	WEP	Alessandro De Roma
3	Big Data Integration and Management	ICOM	Isidoros Kokos
4	Big Data Analytics and Business Intelligence for Energy Systems	CITCEA-UPC	Pau Lloret
5	Big Data Security and Cybersecurity	ATOS	Ross Little
6	Integrated BD4OPEM Marketplace platform	WEP	Amit Eytan

7	Pilots	ODT	Albert González
8	Dissemination and Communication	SUST	Nigel Claridge
9	Exploitation and Business models	SUST	Yasmina Ganse

Table 3. BD4OPEM Work Package Leaders

3.3 Task leaders (TL)

The responsibility for the management of individual tasks in a Work Package is assigned to the designated partner, providing a staff member to lead the task.

The Task Leader is in charge of coordinating and communicating the work performed within all participants in the task. In addition, the Task Leader must provide progress on the task upon request by the WP leader.

The table below summarises the Task Leaders and partners for each task.

			TL	Partner
WP1	Coordination and Management			
	T1.1	Project Coordination, administrative and financial management	Mònica Aragüés	CITCEA-UPC
	T1.2	Data Management Plan (DMP) and privacy protection	Yasmina Ganse	SUST
	T1.3	Intellectual Property, Knowledge Management and Protection	Nigel Claridge	SUST
	T1.4	Ethics management	Nigel Claridge	SUST
WP2	Overall BD4OPEM Open Innovation Architecture			
	T2.1	Open innovation concept design and use cases	Dušan Gabrijelčič	JSI
	T2.2	Standards and protocols	Miha Smolnikar	JSI
	T2.3	BD4OPEM Architecture for open, modular and scalable data analytics	Lourdes Gallego	ATOS
	T2.4	Power system architecture adaptation to pilot sites: Legacy and new roadmap	Francesc Girbau	CITCEA-UPC
	T2.5	BD4OPEM Architecture review	Alessandro De Roma	WEP
WP3	Big Data Integration and Management			

	T3.1	Data acquisition channels and technologies	Isidoros Kokos	ICOM
	T3.2	Semantic Harmonization	Lourdes Gallego	ATOS
	T3.3	Data Acquisition, Quality Management and Governance	Ioanna Katidioti	ICOM
	T3.4	Data Providers Integration	Lourdes Gallego	ATOS
WP4	Big Data Analytics and Business Intelligence for Energy Systems			
	T4.1	Grid monitoring and supervision	Pau Lloret	CITCEA-UPC
	T4.2	Tools for observability	Luc Richaud	ODIT-E
	T4.3	Aggregator Flexibility Calculation	Pau Lloret	CITCEA-UPC
	T4.4	EMS for smart houses, buildings and industries	Andrej Campa	JSI
	T4.5	Asset and investment planning	Chloé Coral	EYPESA
	T4.6	Pre-Pilot test/validation deployment: Lab tests in CITCEA-UPC smart grid	Pau Lloret	CITCEA-UPC
WP5	Big Data Security and Cybersecurity			
	T5.1	Security in IoT data acquisition channels	Isidoros Kokos	ATOS
	T5.2	Security in data for cloud services, tools and App marketplace	Alessandro De Roma	WEP
	T5.3	Decentralised IDs for privacy-preserving distributed energy systems' marketplace	Ross Little	ATOS
	T5.4	Safe and transparent transactions for energy systems over blockchain	Ross Little	ATOS
WP6	Integrated BD4OPEM Marketplace platform			
	T6.1	Cloud architecture and Marketplace development	Isidoros Kokos	ICOM
	T6.2	Services and tools providers integration: Solution, tools and simulation providers	Alessandro De Roma	WEP
	T6.3	Multiple services, tools and Apps testing and fine-tuning	Alessandro De Roma	WEP
WP7	Pilots			

	T7.1	Pilot Methodology and preparation of large-scale pilots	Albert González	ODIT-E
	T7.2	Pilot 1 - Estabanell (Spain)	Chloé Coral	EYPESA
	T7.3	Pilot 2 - ELCE (Slovenia)	Anton Kos	ELCE
	T7.4	Pilot 3 - OEDAS (Turkey)	Ural Halaçoğlu	OEDAS
	T7.5	Pilot 4 – VUB/NUV (Belgium/Denmark)	Dieter Roefs Mogens Lokke	VUB NUV
	T7.6	Validation and certification	Albert González	ODIT-E
WP8	Dissemination and Communication			
	T8.1	Dissemination and communication	Nigel Claridge	SUST
	T8.2	Target Group and Stakeholder analysis	Nigel Claridge	SUST
	T8.3	Dissemination activities	Yasmina Ganse	SUST
	T8.4	Communication activities	Nigel Claridge	SUST
	T8.5	Liaison with the BRIDGE initiative	Nigel Claridge	SUST
WP9	Exploitation and Business models			
	T9.1	Exploitation and business plan incl. activities and key exploitation results	Yasmina Ganse	SUST
	T9.2	Business model development	Yasmina Ganse	SUST
	T9.3	Life cycle analysis	Nigel Claridge	SUST
	T9.4	Capacity-building activities/training	David Agustín	CITCEA-UPC

Table 4. BD4OPEM Task leaders

4 Working plan, milestones and resources

The working plan follows the *Sealed Proposal* in terms of planning and activities. Besides, the different outputs are also listed in the document mentioned above.

4.1 Reporting Periods

The BD4OPEM project reporting is divided into three reporting periods:

RP	Duration	Period
1	FROM M1 TO M18	01/20 – 06/21
2	FROM M19 TO M30	07/21 – 06/22
3	FROM M31 TO M42	07/22 – 06/23

Table 5. BD4OPEM reporting periods

4.2 Project meetings

Figure 2 summarises all the most significant project events, such as the GA and CG meetings, the different milestones and the reviews for the European Commission.

The first meeting of the GA was planned in Meylan (M6), but due to the coronavirus situation, it was held online. The rest of the events follow the planning established in the Kick-Off.

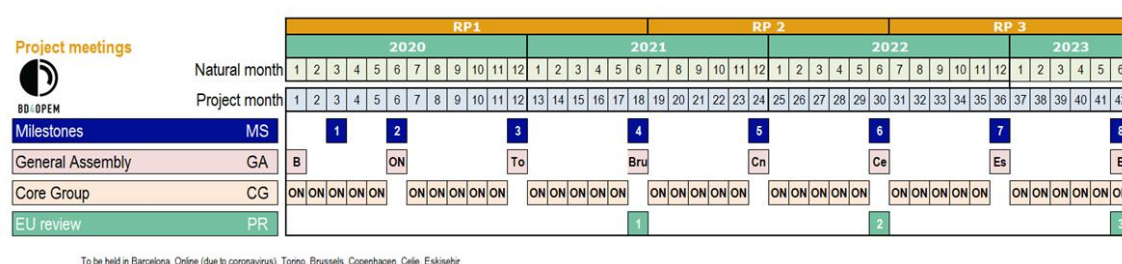


Figure 2. BD4OPEM project meetings

4.3 List of Milestones

Milestones are checkpoints in the project that assist in tracking progress. Moreover, Milestones can relate to the completion of a core deliverable, enabling the starting of the next phase of the work. Also, Milestones can be required at midpoints so that

corrective actions can be initiated if problems have emerged. A milestone may be a crucial decision-making point in the project in which, for instance, the Consortium has to decide which architecture system or which communication strategy to follow.

The following table resumes the BD4OPEM milestones.

Nr	Milestone title	Related WPs	Due Date	Means of verification
1	BD4OPEM website	8	M3	Project's website up and running (D81)
2	Concept and communication	2,3,8	M6	Submission of D11, D12 (DMP), D21, D22, D31 and D82.
3	Architecture System and semantic data harmonisation (first version)	2,3	M12	Submission of D23 and D32.
4	Midterm review – Initial major release of integrated technologies	All	M18	Submission of D33, D41, D83, and D91.
5	Pilot validation methodology and data acquisition	3,7	M24	Submission of D34 and D71.
6	Bd4OPEM services, cybersecurity and integration	3,4,5,6	M30	Submission of D35, D42-47, D52-54 and D62.
7	2nd period review meeting – services' testing and validation	All	M36	Submission of D63 and D84.
8	Final review – pilots' validation	All	M42	Submission of D24, D72-76, D85 and D92-94

Table 6. BD4OPEM milestones

5 Information exchange and communication

5.1 Language

The principal project language is English.

Project documentation such as Project deliverables, meeting minutes, and WPL monthly reports must be written in English. Also, Dissemination and communication materials will be produced in English. However, partners are encouraged to localise materials as they deem fit to satisfy the needs and expectations of their local target audiences. The project website will be produced in English.

5.2 Contacts list

CITCEA-UPC, in collaboration with all the project partners, has created an excel named 'contact list' to allow and facilitate communication between all partners. The document contains essential information such as distribution lists and mailing lists, among others, ensuring optimal and smooth communication.

The contacts excel file can be found in the route:

Dropbox\BD4OPEM\2.Contacts

5.3 Communications and information exchange

Most communications on quality issues will be made by

- E-mail
- Call
- Conferences
- Phone

Quality management will be a fixed topic at all WPL and CG meetings, where the WPL should update on the quality stage of each deliverable. All consortium meetings will also take this point into consideration.

5.4 Documenting agreements and proceedings

All members must ensure that all project requirements are met.

Any updates on the subject of partners' documentation will be communicated to the WPL. Moreover, the WPL is responsible for ensuring that the list of documentation is kept updated and accessible to all members of the shared repository.

This documentation can be found in the repository route:

(Dropbox/BD4OPEM/WPx)

5.5 Types of documents

There are two different types of documents: the contractual documents (which are listed in the Grant Agreement as well as its annexes) and internal project documentation. For each kind of document, the procedure of approval will be made in accordance with the degree of its own significance. Moreover, the approval procedure will be more demanding for contractual documents than for the internal documentation in which this procedure of agreement will follow milder rules.

All reports, minutes or presentations should be made based on the templates in the project documents applicable to all documentation created under the scope of this project. The use of the project templates is mandatory, which are placed at the member's disposal by the folder sharing repository.

(Dropbox/BD4OPEM/3.Templates)

5.5.1 Document owner

Every document, either internal or contractual, has a single owner, which is the person responsible for producing it. The document owner will usually include the work of different collaborators, for instance, for a report on the progress of the work of a Partner or a Deliverable.

The owner is the one responsible for generating the document, based on the appropriate template, and naming it as described in the following sub-sections, including the numbering of the version and all the authors and reviewers that have participated in its elaboration

5.5.2 Contractual documents

The Grant Agreement lists some compulsory documentation to be produced and submitted by the Consortium. The Consortium will forward the reports and other deliverables across the Project Coordinator to the Commission using the electronic exchange system set up by the European Commission (EC), known as the SyGMA system.

5.5.2.1 Project deliverables

Deliverables are considered official documents established as contractual obligations for the project.

The basis for the periodic reviews is based on the deliverables. In addition to being the fundamental outputs of the project, they are also useful for content-oriented reporting to all partners, the Project Coordinator and the European Commission.

The creation and preparation of these deliverables must comply with the standards set out in this document since their relevance is essential, both for the project team itself as well as for the review that will regularly take place.

The definitive deliverable version needs to be formally authorised by the General Assembly before any deliverable can be released and submitted to the EC through Sygma. Not until the entire quality flow process has been successfully completed are the deliverables approved. Thereafter, they are approved and ready for being delivered.

Each deliverable has a consortium responsible beneficiary, as stated in section 1.3.2 of the DoA – Part A. The partner beneficiary shall appoint a responsible person within the organisation who will undertake the production of the deliverable. This responsible person will be referred to as the owner of the document.

5.5.2.2 Project Periodic Reports (PPR)

For each reporting period, the PC must provide to the EC a periodic report, which must include (as stated in the article 20.3 of the GA) the following:

1. Technical report

- **Part A** structured tables of the grant management system:
 - i. Cover Page
 - ii. Summary for publication
 - iii. Web-based tables encompassing issues related to project implementation (e.g. work packages, products, milestones, etc.)
 - iv. Responses to the questionnaire on economic and social impact, particularly, concerning the key performance indicators and monitoring requirements of Horizon 2020.
- **Part B** the free text, central part of the report to be uploaded into the grant management tool in the Core tab of the report, as a unique PDF document with:

- i. descriptions of the work performed by all recipients and associated third parties over the reporting period
- ii. an overall view of the progress made in meeting the project's objectives, providing justification for any gaps between the work foreseen in Annex I and the work actually performed, if any.

2. Financial Report

It consists of structured forms of the grant management system, including:

- Individual financial statements (Annex 4 of the GA) for each beneficiary (and third parties)
- Description of the use of resources and details of subcontracting and contributions in kind provided by third parties, for each beneficiary in the reporting period
- periodic summary financial statement, which includes the request for an interim payment.

5.5.2.3 Project Final Report

In addition to the periodic report for the last reporting period, the coordinator must submit the final report within 60 days following the end of the previous reporting period. In Horizon 2020 the final report is automatically generated by the IT tool and is composed of a final technical and a final financial part:

- **The final technical report is a publishable summary of the entire project**
 - (i) overview of outcomes and their exploitation and dissemination
 - (ii) project conclusions
 - (iii) socio-economic impact of the project
 - (iv) an updated link to the project website
 - (v) project logos, diagrams, photographs and videos illustrating its work (if available).

As for the summaries of the periodic reports, the final summary should be written in a style comprehensible to a non-specialist audience.

The coordinator should check that none of the material submitted for publication includes confidential or 'EU classified' information.

- **Final financial report**

- (i) final summary financial statement that the system creates automatically (consolidating data from all individual financial statements of all beneficiaries and related third parties, for all reporting periods) and which constitutes the request for payment of the balance
- (ii) In some circumstances (and for some beneficiaries/third parties related) it must be supported by a certificate in the financial statements
 - CFS (one certificate per beneficiary/third parties related).

5.5.3 Internal Documents

Internal documents are working materials of the Consortium that can be deemed as a tool for the day-to-day management of the project implementation. These documents are aimed at helping to monitor the progress of the project, maintaining control over the allocation of resources and the distribution of the budget. Also, they are intended to mitigate and resolve any risks that may arise during the implementation of the project.

There are some internal documents which have been established for the project's purpose:

- Internal reports and discussions
- PMs (person-month) and Other Costs reports, performed quarterly
- WPL monthly progress report
- Meeting Minutes
- Project presentations

5.5.3.1 Internal reports and discussions

During the project life, a series of internal discussions will be required to share information, to solve and to agree on the different technical issues that might emerge in the various tasks, particularly among the WPs. Such discussions can be conducted by e-mail, Google Meet conference calls (or other equivalents), in face-to-face meetings or by phone calls between the project members.

Because of this, there is no particular model for discussion and reporting activities. All important decisions and resolutions should be included in the respective Monthly Reports (WPL) or Meeting Minutes, whichever is applicable.

The level of dissemination of internal discussions is kept strictly confidential (CO), as it is only relevant to the members of the Consortium. The individuals responsible (TL, WPL, PM or PC, depending on the subject) should store discussion files and Meeting Minutes in the shared repository.

5.5.3.2 WPL monthly progress report

Monthly WPL progress reports are prepared monthly by each WPL and addressed to the Core Group. These reports always cover a given calendar month, usually spanning the month before the meeting.

The monthly Work Package progress report will indicate the progress and achievements of the respective work packages and their tasks during the previous month, from the viewpoint of the work package. The report has to include all deviations in comparison with the work plan, and all resolving actions proposed.

Such reports will be the basis at the monthly meeting of the CG, presided over by the PC, enabling accurate monitoring of the project. Consequently, reports should be made available to participants in the CG meetings (CG and WPL members) substantially in advance of the assigned date, and at least one week before the meeting is to be held. The WPLs must use the folder of the corresponding CG meeting, located in the dropbox repository.

The WPL Monthly report folder can be found in the route:

BD4OPEM\5.Reports\WPL Monthly Reports

A specific template is provided, which will be at the disposal of the partners in the dropbox repository.

5.5.3.3 PMs (person-month) and Other Costs reports

As it was stated in the Kick-Off meeting, held in January 2020 in Barcelona, the members will have to provide their reports quarterly on the consumption of staff resources and other direct expenses made over the previous three months, from the perspective of the partner.

The Partners will specify the participation of the personnel in every WP and their corresponding tasks.

Moreover, all direct costs will be reported to ensure proper management of the budget in compliance with the DoA and to foresee any potential deviations.

This report (OC&PMs) will be performed by using specific MS Excel files templates, created by CITCEA-UPC and available to all partners on the dropbox repository.

Both Other Costs and PMs reporting, can be found in the following repository route:

\\Dropbox\\BD4OPEM\\5.Reports

The ultimate responsible person responsible for this reporting is the CG member.

5.5.3.4 Meeting minutes

The minutes of the BD4OPEM meetings will be prepared as soon as possible after the conclusion of the meeting in order to disseminate the results.

The minutes shall include the resolutions and agreements taken, and establish the following steps to perform, including a list of Todos.

The minutes will be disseminated and acknowledged by all meeting attendees, distributed to all relevant parties, who should be aware of the results of the meeting and stored in the appropriate folder in the shared mailbox repository.

The Meeting Minutes should be stored in the route:

Dropbox\\BD4OPEM\\6.Minutes

A template of the Meeting Minutes is provided, and it is available to all the project partners in the dropbox repository.

The Meeting Minutes template can be found in the route:

BD4OPEM\\3.Templates\\Project documents \\BD4OPEM_meeting minutes_MM

The person responsible for generating the minutes is the individual who has requested the meeting.

5.5.3.5 Project presentations

The presentations not only serve as documentation for the meetings, but are also a necessary means of dissemination at events.

Given the graphical project image and the general layout, all the partners are provided with a template which is available in the dropbox repository.

The PowerPoint template presentation can be found in the route:

BD4OPEM\\3.Templates\\Project documents\\

The person responsible for generating the presentation is the one who will present the document at the corresponding event.

5.6 Naming conventions

The name of each document convention is stated in this section, along with its management rules. As a result of incorrect naming conventions, uses and its applications can lead to undesirable errors and misunderstandings, resulting in additional effort and ultimately increasing project's costs.

The following categories are used for naming the documents:

- Version
- Document ID
- Name of the document
- Time identifier
- Partner and contributor identification

5.6.1.1 Document ID

All BD4OPEM project documents are identified by a specific document identifier written in uppercase letters and according to the type or character of the document:

Identifier	Internal document type
ID	Internal discussion or report
MM	Meeting Minutes
MR	WPL Monthly progress report
PP	Project presentation

Table 7. Project documents identifiers (I)

Identifier	Contractual document type
CFS	Certificate on financial statements
D	Projects deliverables
PPR	Project periodic report (M18, M30)
PFR	Project final report (M42)

Table 8. Project documents identifier (II)

5.6.1.2 Name of the document

The name of the document will describe its content.

- ID: indicating the issue addressed in the document
- MM: stating the official name of the meeting
- PP: indicating the name of the presentation, event or conference where the presentation will be held

5.6.1.3 Time identifier

Every document must have a time identifier, for instance, could be **Mxx** for a Monthly report (e.g. M3, M6, M9...), or **ddmmyy** for a Meeting Minutes. (e.g. 260520)

5.6.1.4 Partner and contributor identification

The contributor identification will follow the format Partner-Contributor, formed by the short name of the partner as specified in the DoA and the identifier of the contributor.

5.6.1.5 Version

The document version identification will use the format **vx.y**, where **x.y** is the present version of the document and will match with the document front page (e.g. v0.3 for a third draft version)

The only person who can generate the different versions of the document is the document owner. Each collaborator can produce new working versions under different names to avoid any confusion, but these are not considered to be published versions. Moreover, regarding file naming conventions, the following table resumes the structure to be used when creating any new document with contractual or operational character.

Document Type	Convention	File Name example
Internal discussion or report	ID_Name_DocumentDate_Partner-Contributor_version	ID_WP1_Quality_240520_UPC-IB_v2
WPL monthly report	MR_Month_WPnumber_BD4OPEM_Version	MR_M1_WP1_BD4OPEM_v1
Meeting Minutes	MM_MeetingName_MeetingDate_Partner-Contributor_Version	MM_CG_130220_UPC-IB_v1
Project Presentation	PP_Presentation/eventName_EventDate_Partner-Editor_Version	PP_BRIDGEH2020_090220_UPC-IB_v3

Table 9. Denomination formats

5.7 Document Properties

Each document will include a first page and a secondary page where its main features are listed.

The properties will be modified during the generation of the document. Moreover, it will be adapted during the writing as well as the Quality process, until reaching the final version.

- Name of the document.
- Version: Preliminary versions start with 0.1 and are increased by 0.1. Versions ready to release are given version numbers x.0, for example, 2.0. The version number for the discussion (ID) is optional; in this instance, the date may steer readers between the different versions.
- Dissemination level: Public (totally accessible), Confidential (reserved for the terms and conditions established in the Model Grant Agreement) or Internal (only for the Consortium). The dissemination status of all internal documents must be beforehand "Internal".
- Status: Draft, peer-reviewed (once accepted by peers), Submitted (after PC, CG and WP recipient's acceptance), Approved (once accepted by the reviewers and the European Commission, this will be the definitive version).
- Date: The date indicates the time when the document was published.
- Author, Contributor: Authors and collaborators/contributors
- For each deliverable, peer reviewers were defined which can be found in Appendix A

5.8 Document change controls

All the changes applied and based on the document need to be mirrored and displayed in the document history table. Consequently, it will be necessary to implement the version number update.

5.9 Document archive

The Project Coordinator established a shared document repository (currently operating under dropbox) following the structure below:

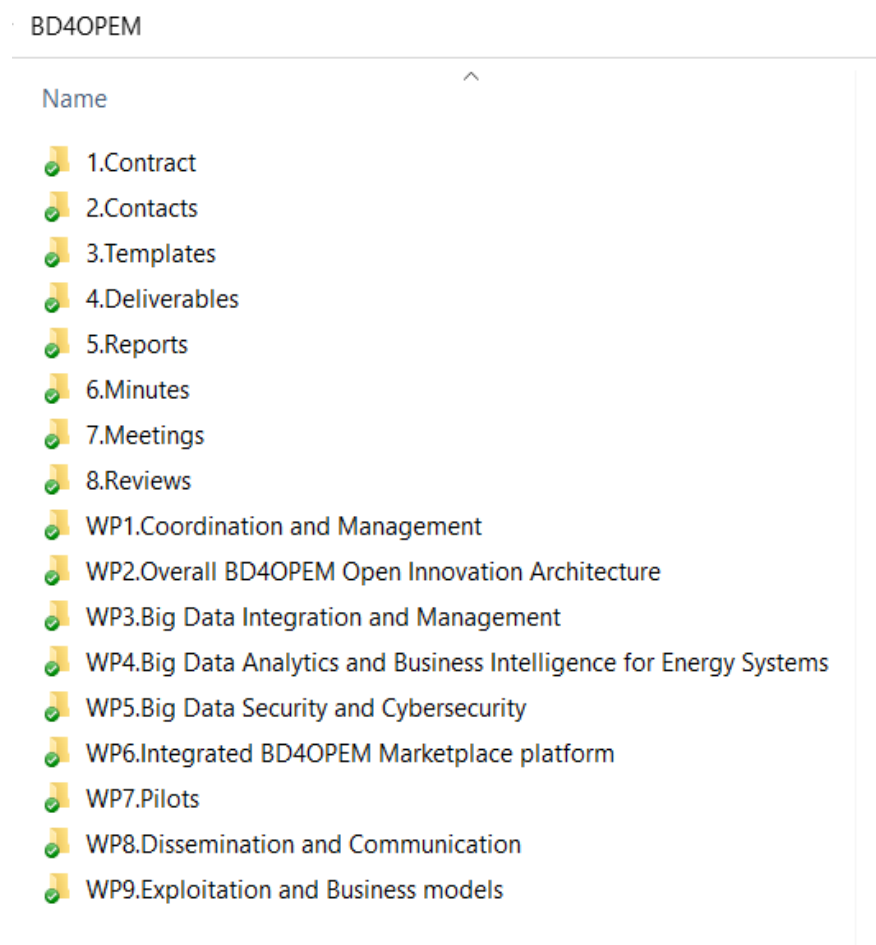


Figure 3. BD4OPEM Shared repository

Folders numbered from "1. Contract" to "8. Reviews" are under the responsibility of the PC and the PM, which will be responsible for storing and archiving all the documents of the project (particularly its latest versions), ensuring that they are accessible to all the project partners.

The remaining folders belong to the activities of the different Work Packages and are managed by the corresponding WPL. They shall structure it with subfolders, suggesting at least a subfolder per WP task. Moreover, according to the nature of the works, will include subfolders, e.g. for storing technical drawings, software codes, diagrams, internal data discussions, ongoing documents, presentations, papers, progress files, etc. all depending on the individual requirements of each WP.

Given the limitation of dropbox non-premium accounts, it is strongly recommended to not store any large files in project folders, that would reduce or overload the capacity of certain individual accounts.

6 Quality Control

Quality control is the process used by operations personnel to guarantee that processes meet the requirements for deliverables and outputs (defined during the planning phase) [3]. It is based on the feedback loop and consists of the following steps:

- Evaluate current operational performance.
- Compare actual performance with targets.
- Act on the difference.

The main objective of internal Quality is the improvement of internal processes, which will avoid deficiencies and problems that will lead to a reduction in costs [4].

Quality control plays a vital role in Project Coordination. The Consortium agreed to set up a task (1.1 Project Coordination, administrative and financial management) in WP1, addressing to ensure those project procedures are implemented. Consequently, results are produced with the highest standard of Quality demanded, achieved by measuring and evaluating improvements and outcomes generated by the various Work Packages regularly and in line with established procedures and standards.

Moreover, the execution of the Quality control activity is usually determined by a Quality Plan, in which the main operative points are defined and controlled. The BD4OPEM Quality plan can be defined as a group of actions scheduled at the start of the project. Those actions contribute to achieving the required Quality throughout the execution of the project [5].

The Quality plan aims to set out these activities/tasks in order to guarantee the production of specific, targeted and high-quality results in accordance with the project plans and the compliance with the contractual commitments of the project and the members while focusing on the fulfilment of the recipients quality expectations. The BD4OPEM Quality plan includes the implementation of Quality Standards (peer reviews, checklist execution...) by use of different (templates, checklists...) which are available in the consortium repository.

Through this plan, project participants are conscious of all the quality standards that must be applied over the course of the project, and at any stage of the work performed.

The Quality Plan addresses the associated quality aspects of the Work Package activities, providing a precise specification of the rules and procedures relating to the

management and technological aspects of the works, generating a series of processes and tools that will contribute to the achievement of the goals of the project.

6.1 KPIs

The key performance indicators (KPIs) are crucial elements in controlling the Quality of the project and ensuring its correct technical development.

The ultimate goal of a KPI is to determine the right course of action to boost performance and maintain the strategy on track [6]. Its monitoring is performed in short blocks of time, so that the partners involved can quickly respond to correct the mistakes. Probably the most significant attribute of a KPI is its relationship to "action", suggesting that specific steps may be required to fix a problem or to take advantage of an opportunity. Also, the purpose of a KPI is to trace performance measures that follow changes to a target. The data in the KPIs can bounce off every reporting period. Prior to acting on a single data point, the PC shall examine if a trend can be detected. [6]

In Appendix B, the list of the KPIs owners for BD4OPEM, defined by the PC together with the QM, can be found.

7 Quality Commitment

The Quality plan, which includes different rules, processes, conventions and templates of documents, is intended to check, to validate and ultimately to approve the adequacy of all the various actions of the project (concrete works, tasks, decisions, documents...) in terms of structure, quality, approach and the accomplishment of the intended purposes.

The rules and procedures established in 'WP1 – Coordination and Management' will be used extensively by the Consortium, and in particular by the PC, as a managerial instrument that will help to ensure that the objectives of the project are met.

The fulfilment of the Quality Plan is the result of the cooperation between the different individuals, organisations and bodies that are in charge of applying all the rules and processes established to guarantee the maximum Quality of the outcomes of the project's execution.

The PC should reach the following goals:

- To ensure the proper requirements for the project execution and validation
- To ensure that the Quality model fits the reality in the best possible way
- To develop, keep and check the quality guarantee processes
- To implement quality guarantee processes effectively
- To ensure that all participants understand the exceptional importance of the implementation of the Quality plan
- To provide all the necessary tools to allow proper interfacing for the partners in all activities related to quality assurance
- Provide clarity and advice on quality issues, whenever necessary

All participants are therefore obliged to comply with the various process quality standards, which include the following objectives in particular:

- Ensure that all project actions are completed on time, according to the rules set out in the quality plan and with the desired quality.
- Ensure compliance with the project schedule by monitoring and auditing project operations.
- To assure correct communication among the partners during the implementation of the project, in all its stages
- To help the PC and the GA in any matter related to quality
- Properly adherence to the quality control processes defined throughout the execution of the project
- Report any QA-related problems to the PC promptly

8 Quality Management

The Consortium has set up a quality management procedure in collaboration with the Quality Manager (QM), to ensure the quality of the work to be performed during the project. This quality control procedure is focused on the quality control of the products and the overall results of the project.

8.1 Ensuring high standards on deliverables

Deliverables are a crucial element to inform and to communicate with the European Commission. Consequently, the production management and delivery of these documents are vital tasks in the field of Quality assurance.

The present section discusses the overall deliverable production. Also, it describes how their revisions will be conducted in order to ensure proper compliance with the requirements.

8.2 Workflow

All outputs produced by the corresponding WP must undergo an internal quality review process to ensure the quality and appropriateness of the project goals and according to the planned results. However, if this process is not completed successfully, the deliverable can not be provided to the peer-reviewers, and ultimately to the European Commission.

The review of the deliverable is planned to start one month before the delivery date to the Sygma portal (4 weeks). These weekly revisions are structured as follows:

- **1st week:** It starts four weeks before the deliverable deadline submission to Sygma. A first draft is sent by the deliverable responsible to the peer reviewers and quality manager
- **2nd week:** After one week of review, the peer-reviewers and quality manager send the updated deliverable with their comments to the Deliverable responsible
- **3rd week:** After one week for implementing the changes according to the reviews, the Deliverable responsible send the updated version to the General Assembly members

- **4th week:** General Assembly members have one week to agree on the deliverable formal acceptance

Figure 4 shows the entire workflow, including all steps and actors involved in the review process, as well as the expected outcome for each step of the review.

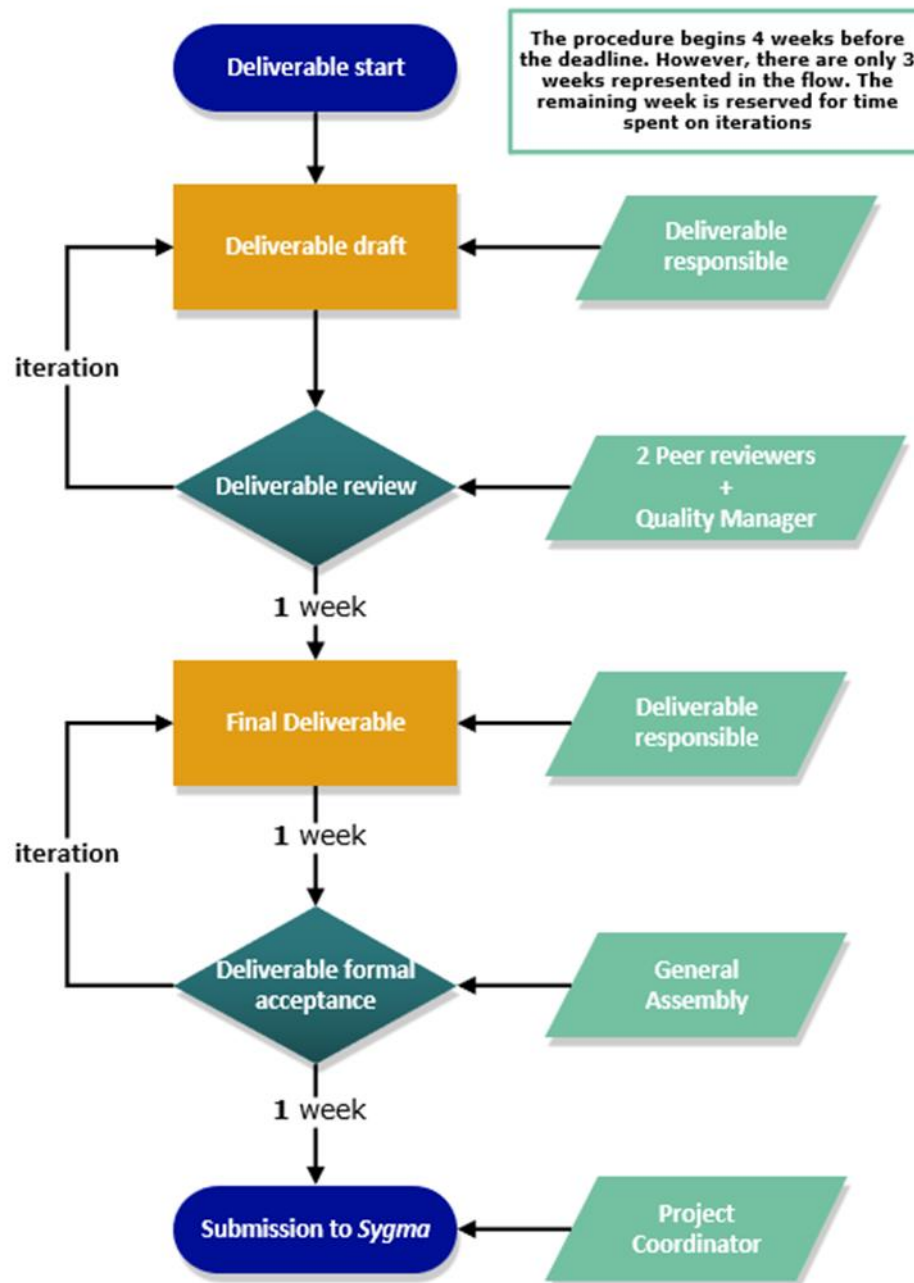


Figure 4. Quality Management process overview

The Quality Management process will be applicable not only to the final version of the deliverable, but also to the entire generation flow, assuring that all received

feedback is introduced into the flow at the earliest possible stage. Consequently, producing outstanding results.

The overall process begins with the production of a draft deliverable by the deliverable responsible. Then, the two reviewers, along with the Quality Manager (ICOM) will provide their revised versions, sending them back to the deliverable responsible. Based on this, the deliverable manager makes the appropriate changes to the document and presents it to the General Assembly. The General Assembly is the consortium body who will be accepting or refusing the final deliverable, and their ruling is considered to be conclusive. If iterations are necessary, the deliverable will be returned to the delivery responsible. If the deliverable is deemed to be successful, then the process can be considered as finished and the workflow completed. Thus, the Project Coordinator will proceed to the submission to the European Commission through Sygma.

8.2.1 Producing a deliverable draft

The corresponding partner creates the deliverable draft. In case clarifications are needed, the responsible partner can ask other members or bodies such as the GA, the CG or the Project Coordinator.

Under the section "Executive Summary", the primary background information on the document, it's the scope and relationships with other products, the overview of related work undertaken, significant findings and conclusions should be provided.

8.2.2 Peer-review of a draft deliverable

The PC alongside the QM, has created a list with the reviewers defined for each deliverable. The table can be found in Appendix A. The choice of this selection has been made according to the partner's skills, experience and knowledge and trying to achieve a balanced distribution of work. However, the General Assembly has the responsibility to review and accept the deliverables as being valid formally, but involving the reviewers at an early stage will lead to greater safety, efficiency and effectivity.

During the first review process, the peer reviewers use the draft made from the deliverable responsible. Therefore, document implementation changes need to be made, as stated in section 5 of the present document, such as version file updating and adding the name of the reviewer. To help track any proposed changes, the use of Microsoft Word's "track changes" is mandatory, as it will help to monitor changes more quickly.

The peer reviewers will examine the draft document and assess whether the following questions are addressed:

- Are the objectives fully explained?
- Are the outcomes accurate and clearly defined?
- Are the targeted beneficiaries Work Packages clearly identified?
- Have the needs of the Work Packages of the selected recipients been adequately described and addressed?
- Are the contents suitable and satisfactory for the aims of the deliverable?
- Are the links with other work packages properly documented and explained?
- Have the risks contained in the work package been recognised and acted upon?

After internally evaluating this question for the reviewing process, the reviewed document returns to the deliverable responsible. This reviewed file should be stored in the corresponding WP file.

In the event that a large number of comments or proposed changes arise as a result of the revision, an identification document related to this issue could be provided, which would be used to provide a more comprehensive and detailed report from the peer reviewer and which contains relevant observations and recommendations. Also, a copy of the report should be kept in the appropriate folder of the WP.

Once the deliverable responsible has received and considered the appropriate modifications and adjustments, the owner of the deliverable can produce the "Peer Reviewed" version.

Upon reviewers' approval of the draft deliverable, the deliverable quality process can proceed to the next stage. However, if it is not approved, the deliverable will need to move back to the prior phase.

8.2.3 Final deliverable

The owner of the deliverable will follow up on the suggestions made by the QM and the peer-reviewers, implementing them in order to achieve the quality standards established by the Consortium.

The owner of the deliverable then submits the final version of the deliverable for GA approval.

8.2.4 GA acceptance

All deliverables must have the acceptance of the General Assembly. This review, will not only focus on the content, but also on the timing and the implementation of the proposed suggestions.

If the deliverable receives the approval of the General Assembly, it can go to the last step, the Sygma portal submission.

8.2.5 Submitting to Sygma

In the last step of the deliverable Quality process, the PC verifies if the supplied version of the deliverable has been accepted correctly. At this point, a quick review of the process is conducted:

- Is there enough evidence of compliance with the review process?
- The review process was performed as planned?
- All of the essential members of the GA had the opportunity to revise the deliverable?
- Have comments been addressed adequately in the deliverable?

In the event of a positive evaluation, the Project Coordinator proceeds to produce a PDF version of the final deliverable to be presented for review and approval by the Project Officer. Afterwards, the deliverable is placed in the corresponding project folder repository. If any delay in the deliverable is suffered, appropriate explanations provided from the WPL will also be reported to the PO.

8.3 Progress Reporting

Periodic progress reports assist the BD4OPEM consortium and the EC in monitoring the results, successes and challenges of the project as they are found.

Throughout the life of the project, periodic reports are to be submitted by the project partners for each reporting period. The WPL will also have to produce a Monthly Report to be submitted to the GC. The project schedule for BD4OPEM can be seen in Figure 5.

Reporting schedule - Reports to be delivered during the 1st week of the indicated month

		2020												2021												2022												2023						
		Natural month												Natural month												Natural month												Natural month						
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	
Project month		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
WPL Monthly Report	MR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Partner PMs reporting	PM				✓			✓				✓					✓						✓				✓					✓					✓				✓		✓	
Partner OCs reporting	OC				✓			✓				✓					✓						✓				✓					✓					✓				✓		✓	
Interim report	IR							✓					✓													✓																	✓	
Official Progress Report	OPR																																											✓

WPL Monthly Report	MR	Use of the MR template. Comments on tasks' activities and results for each WP
Partner PMs reporting	PM	Fill in the PMs excel file with consumed PMs during the 3-months period
Partner OCs reporting	OC	Fill in the OCs excel file with all other costs incurred during the 3-months period
Interim report	IR	Use of the IR template. Report on Partners' activities and used resources in each WP.
Official Progress Report	OPR	Use of the EC template. Overall situation of the project

Figure 5. BD4OPEM reporting schedule

Beyond the necessity to meet the above requirements, it is possible that partners could be asked to provide input for other reporting types during the course of the project.

All documentation associated with reporting operations must be submitted on time, with an adequate degree of detail, employing the templates given for that particular task, and paying particular attention to the delivery of reasoned information in ensuring their usability. The GA and the PC will have the right to refuse any report that does not meet the quality level required.

8.4 Minutes for Quality Control

All meetings from the Consortium (online or face-to-face) will have to be reported in their respective minutes. The corresponding template should be used according to the nature of the meeting.

The meetings involving the EC and any representative acting on behalf of BD4OPEM must also be reflected in the appropriate minutes.

In addition, all records should be accessible to the governing bodies, ensuring that only members of the relevant governing body have access to them. Therefore, dedicated restricted folders will be created and controlled in the project repository.

9 Risk Management Plan

The intention of the BD4OPEM Risk Management plan is to ensure the necessary evaluation of potential hazards, thus enabling the Consortium to adopt appropriate, precautionary, effective, objective, and time-sensitive actions in order to avoid impact on costs, quality, schedule or scope [7].

The Risk Management Plan is an essential tool for the whole BD4OPEM Consortium.

Therefore, any partner who has detected a source of potential risk is obliged to notify its existence. Consequently, starting the proper process characterisation and potential risk solution.

The Risk Management plan provides guidance for the management activities within both the Core Group and the General Assembly. Moreover, it is the basis for all decisions regarding foreseen or previously identified risks that could have a substantial effect on the implementation of the BD4OPEM project. The Consortium establishes the Risk Management plan as an ongoing process to be implemented over the entire lifetime of the project.

The proposed methodology seeks to address the potential risks of the project and possible effects concerning technological issues, resources, budget or timeframe.

Each of the identified risks will be assessed, and an individual contingency plan will be tailored. When a threat emerges, it will trigger corrective measures.

This Risk Management plan has to be an iterative process since, at any time of the project, a new risk can appear and generate unpredictable situations.

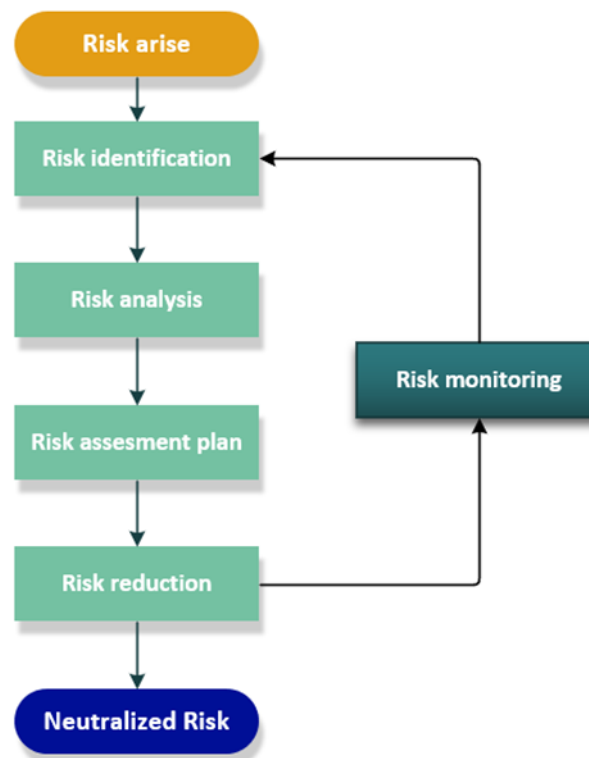


Figure 6. Risk Management plan

9.1 Risk identification

A risk cannot be managed or reduced without adequate identification first. There are some steps in risk assessment that mainly consist of risk discovery, classification and communication, before it becomes an issue that can negatively affect the project.

The different steps described in Figure 7 are designed to execute a correct identification of risks.

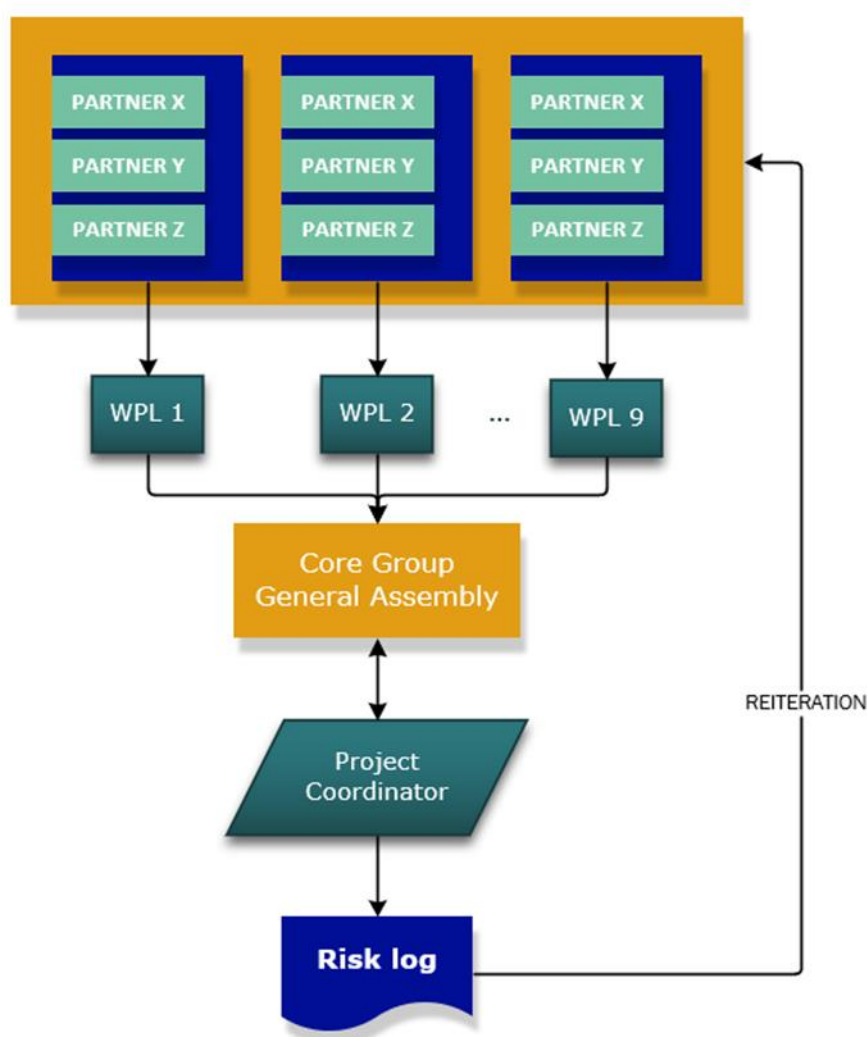


Figure 7. Risk identification process

9.1.1 Partner level

Each partner will be asked to contribute with ideas on essential aspects of participation in the project and the entire project development. This brainstorming, assuming a large number of views, will lead to high-quality outputs [8]. As a result, project members can recognise the different scenarios or circumstances in a specific project field that may give rise to a particular risk.

These efforts will take advantage of the information gathered by every member of the brainstorming activities have gained from their own experiences and learned lessons in past national or international R&D operations, taking into account also the lists of risks developed in projects or comparable circumstances.

9.1.2 Work Package level

After the previous step is made, at partner level, the potential risks may be reported to the respective WPL (Figure 7) to provide feedback and to disseminate the exercise's approach.

The WPL will resume and discuss the various identified risks from all partners involved in the WP and identify the ultimate threats to be reported to the PC, CG, and GA for their consideration.

Risk issues should be addressed in each Monthly Report of all WPLs.

9.1.3 Decision body level

The Consortium, under the PC guidance, is responsible for deciding whether or not to add each a specific risk into the risk log file.

9.2 Risk log

All detected risks will be recorded in a risk log file, under the PC responsibility and properly marked by:

- Risk number
- Registration Date
- Risk owner
- Risk description
- Risk impact
- Risk likelihood
- Risk situation
- Risk Action
- WP especially affected

All risks, when entered into the Risk log excel file, will be kept as a permanent record (never removed) for the purpose of giving a full, precise and current picture of all risks encountered in the project (regardless of whether or not they have already happened or resolved).

The Risk log excel file will be reviewed, argued and considered for decision-making at each regular CG meeting.

The risk log file can be found in the route:

BD4OPEM\WP1.Coordination and Management\3. Risk log

9.3 Risk analysis

The competent decision-making body (CG or GA) will be responsible for assessing each risk contained in the Risk log excel. The outcome of the analysis shall at least cover the following elements:

- Risk description

This is a brief and succinct description of the essence and features of the risk, including a strong statement in the project work plan.

- Risk impact

For every risk that has been identified, evaluate the risk occurrence to determine it's impact on the project goals, assuming that the risk occurrence occurs. For each risk, the risk event can be rated as very low impact, low, medium, high and very high.

Impact	Technical qualities	Schedule
Very High	Severe deterioration. Cannot meet KPI or technical keys or support barrier. It will endanger the success of the project.	Can't deliver on the core project milestones.
High	Substantial decline or lack of support. May compromise the success of the project.	The critical path of the project is compromised.
Medium	Limited reduction with restricted effect upon the project goals.	Minor schedule slip. Able to meet key milestones with no schedule float.
Low	Minimal reduction may be tolerated with minimal or no effect on the project.	Capable of meeting important milestones.
Very Low	Minimal or no consequences.	Minimal or no effect.

Table 10. Risk assessment and implications

- Risk owner

The appropriate decision-making body (GA or CG) will decide on the best partner to handle each specific risk across the Consortium.

- Risk likelihood

For each identified risk, evaluate the risk happening according to its probability of occurring. Every risk can be rated in accordance with the range

listed below. The consequences to be expected should also be determined on this basis.

Like hood		Probability of occurrence (%)
Near Certainty	Very high	≈95
Highly Likely	High	≈75
Likely	Medium	≈50
Low like hood	Low	≈25
Unlikely	Very low	≈10

Table 11. Probability of risk and occurrence

9.4 Risk assessment plan

It is not sufficient to only identify and measure the risks. The idea is to manage them. For every risk identified as a threat, the GA or GC will choose an adequate risk strategy approach from the following.

Mitigation strategy	
Avoidance	Seeking to remove uncertainty
Mitigation	Reducing the chance and/or the seriousness of the risk below an acceptability limit.
Transfer	Ownership and responsibility are transferred over to a third party.
Accommodate	Accepting the fact that the risk is present, taking the chances

Table 12. Risk assessment strategies

Planning for contingencies shall include, in particular, an objective and comprehensible description of the strategy selected and the corresponding actions or counter-measures adopted, clearly stating instructions from the responsible parties involved. Thus, the owner of the risk will be in a position to follow unambiguous guidance during the risk mitigation.

9.5 Risk reduction

The implementation of risk reduction aims to ensure that the risks posed are adequately mitigated. Therefore, the specific tasks to be performed by the risk owner are as follows:

- To identify the several actions to be implemented by different partners, WPL and/or additional actors who participate in the established and approved risk reduction plan.
- Identify the necessary resources to implement the actions identified and address the risk.
- Specify risk information needs for appropriate ongoing oversight.

9.6 Risk monitoring

Risk monitoring is intended to monitor the implementation of the risk reduction process and to assess the results. In doing so, specific tasks will be:

- Informing all parties implicated in the plan and implementation of risk reduction.
- Supervise the implementation of risk mitigation and properly maintain the Risk log excel file.
- Inform the PC and involved actors whenever a risk reduction plan requires modification because of ongoing progress and circumstances.
- Inform the PC of the evolution and termination of risk reduction.

Upon request, Risk Owner may assist the CP on technical discussions and reviews which should explain the implementation and results of risk mitigation.

9.7 Process of re-iteration of the identification of risks

The Consortium had already identified several particular risks at the proposal stage. In the course of the project kick-off meeting, time was devoted to a discussion session in which no further risks were encountered.

During the implementation of the project, the Risk log file must be revised with up-to-date information on the risk reduction activities performed, any new internal conditions of the project and/or external constraints. It is deemed to be an ongoing-

activity to be coordinated by the PC in the meetings of different projects meetings that are held on a regular basis.

The Consortium plans to repeat the risk identification process at least every six months on (M6, M12, M18, M24, M30, M36, M42).

10 Conclusions

This deliverable has described all the necessary quality tools to implement the BD4OPEM project successfully. The document gathers essential information regarding the BD4OPEM management with the intention of serving as a guide to all partners, for questions regarding the governance structure, project organisation, general and specific quality processes, managing emerging threats and working tools. In short, covering the fundamental issues and most important aspects of the project coordination.

Also, this document might evolve over the course of the project and eventually will be updated. However, this is the version published as an official release in M6 for D1.1.

The partners should use it as a complement to the Grant Agreement and the Consortium Agreement. Additional guidelines can also be found on the EC Participant Portal within the framework of HORIZON H2020 projects.

11 References

- [1] E. Commission, "BD4OPEM Description Of Action, number 872525. Directorate-General for Communications Networks, Content and Technology," p. 104, 2019.
- [2] E. Commission, "BD4OPEM Grant Agreement, number 872525. Directorate-General for Communications Networks, Content and Technology," p. 84, 2019.
- [3] K. P. Pyzdek T., *The Handbook for Quality Management A Complete Guide to Operational Excellence*, 2nd ed. Chicago: McGraw Hill, 2013.
- [4] G. K. K. Jens J. Dahlgaard, Kai Kristensen, *Fundamentals of Total Quality Management*, 1st ed. London: Taylor&Francis, 2007.
- [5] D. Hoyle, *Quality Management Essentials*. Oxford: Elsevier Ltd, 2007.
- [6] H. Kerzner, *Project Management Metrics, KPIs, and Dashboards A Guide to Measuring and Monitoring Project Performance*, 3rd ed. New york City: WILEY, 2017.
- [7] J. P. Lewis, *Project Planning Scheduling & Control*, 5th ed. New york City, 2005.
- [8] Cynthia Snyder Dionisio, *A Project Manager's Book of Tools and Techniques*, 6th Editio. Hoboken, New Jersey: Wiley, 2018.

12 Appendix

Appendix A – Deliverables Peer-Reviewers

Nr	Name	*PR ¹	*PR ²	TL
D1.1	Quality Management Plan (QMP)	ICOM	SUST	CITCEA-UPC
D1.2	Data Policy Management Policy (DMP)	CITCEA-UPC	ODT	SUST
D2.1	Concept design and use cases	CITCEA-UPC	ICOM	JSI
D2.2	Standards and protocols used in the BD4OPEM Project	WEP	ATOS	JSI
D2.3	Open innovation Project architecture description	WEP	JSI	ATOS
D2.4	Architecture review description (adaptation to pilots)	ATOS	ODT	WEP
D3.1	Data acquisition protocols, technologies and information models	ATOS	ODT	ICOM
D3.2	Semantic harmonisation and data acquisition and management – initial	ICOM	OEDAS	ATOS
D3.3	Semantic harmonisation and initial version of access interfaces – final	ICOM	JSI	ATOS
D3.4	Final report on data quality management and governance	WEP	JSI	ICOM
D3.5	Final report on data integration and unified access	WEP	JSI	ATOS
D4.1	BD4OPEM technologies and services first version	EyPESA	ODT	CITCEA-UPC
D4.2	Grid monitoring and supervision	ODT	EyPESA	CITCEA-UPC
D4.3	Tools for observability	OEDAS	UPC	ODT
D4.4	Aggregator Flexibility Calculation	EyPESA	ICOM	CITCEA-UPC
D4.5	EMS for smart houses, buildings and industries	ELCE	CITCEA-UPC	JSI
D4.6	Asset and investment planning	CITCEA-UPC	VUB	EyPESA

D4.7	Previous test/validation to pilot deployment: Laboratory tests in CITCEA-UPC smart grid report	ELCE	ICOM	CITCEA-UPC
D5.1	Access network security strategy	ATOS	WEP	ICOM
D5.2	Cloud marketplace security strategy	ATOS	ICOM	WEP
D5.3	Decentralised ID Blockchain and claims wallet for data lake and Marketplace	ICOM	WEP	ATOS
D5.4	Transparent transactions for energy systems over blockchain	CITCEA-UPC	ICOM	ATOS
D6.1	Cloud architecture and Marketplace implementation	ATOS	WEP	ICOM
D6.2	Open APIs, data and solution providers integration in marketplace	ATOS	NUVVE	WEP
D6.3	New services, tools and Apps integration	NUVEE	ODT	WEP
D7.1	Large scale pilots' methodology	EyPESA	SUST	ODT
D7.2	Pilot 1 – Spanish pilot description and results	ODT	CITCEA-UPC	EyPESA
D7.3	Pilot 2 – Slovenian pilot description and results	ATOS	OEDAS	ELCE
D7.4	Pilot 3 – Turkish pilot description and results	ATOS	ELCE	OEDAS
D7.5	Pilot 4 – Belgium/Denmark pilot description and results	ODT	NUVVE	VUB
D7.6	Pilots validation	WEP	CITCEA-UPC	ODT
D8.1	Dissemination and Communication plan	JSI	CITCEA-UPC	SUST
D8.2	Website and social media strategy	WEP	CITCEA-UPC	SUST
D8.3	Project videos first release	JSI	NUVVE	SUST
D8.4	Project videos final release	JSI	VUB	SUST
D8.5	Dissemination and Communication report	JSI	VUB	SUST
D9.1	Exploitation and Business Plan (Draft)	VUB	UPC	SUST
D9.2	Business models scenarios	ICOM	UPC	SUST
D9.3	Life cycle analysis report	OEDAS	VUB	SUST

D9.4	Final Exploitation and Business Plan	SUST	VUB	CITCEA- UPC
-------------	--------------------------------------	-------------	------------	----------------

PR¹ = Peer reviewer 1

PR² = Peer reviewer 2

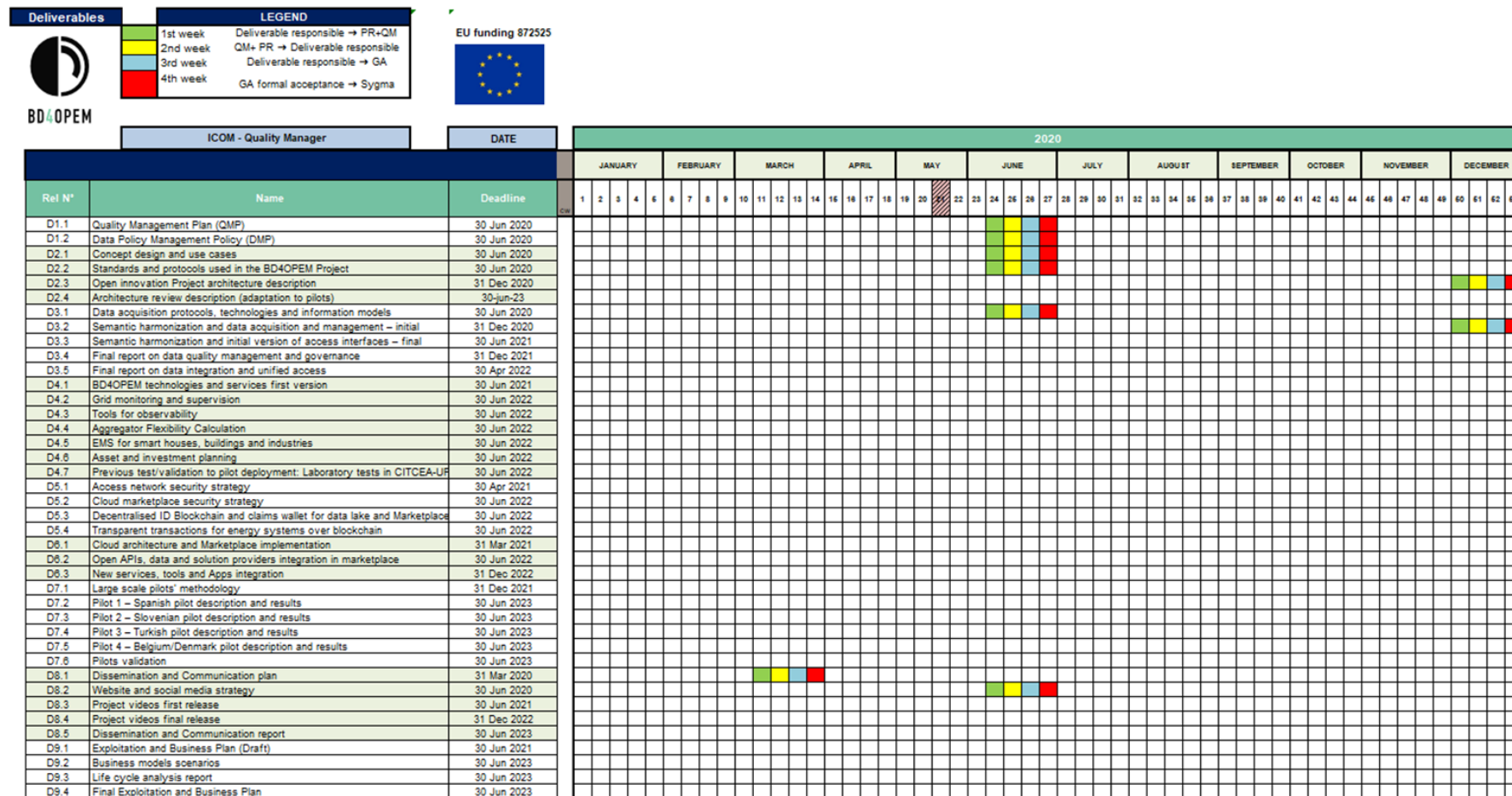
Appendix B - KPIs owners

Name	KPI	Nº	Responsible partner	Target
1 Large-scale dimension of demonstrator activities	Replication of solutions on different pilots	1.1	CITCEA-UPC	To be compliant with the BD4OPEM matrix pilot/solutions
	Dimension of data providers and volume of data managed	1.2	EyPESA	Data providers that are DSOs have to provide data from at least 50.000 smart meters.
		1.3	VUB	Data providers involved in a microgrid operation must provide data from at least 1000 smart meters.
		1.4	OEDAS	Data providers that do not have smart meters must provide at least 800 GB of data.
	Data not previously managed	1.5	ICOM	Increment of more than 25% of data managed during the project
	Number of users	1.6	ODT	Increment of more than 20% of number of final users covered by the project in specific solutions
2 Technological choice and provision of tools contributing to the Digital Marketplace for Energy	Data coming from renewable technologies	2.1	OEDAS	4 renewable technologies (Wind, PV, Hydro, geothermal) with data available for solutions
	Solutions integrating data coming from renewable technologies	2.2	ODT	>80% solutions integrating data available from renewable sources
	Solutions coming from previous BRIDGE initiative projects which increase TRL during this project	2.3	CITCEA-UPC	Minimum 8 solutions coming from previous BRIDGE initiative projects which increase TRL during this project
	Pilots connected with other BRIDGE projects	2.4	SUST	2 pilots with activities connected with previous BRIDGE pilot projects (Spain and Slovenia)
	New services with existing tools	2.5	NUV	Minimum 2 new services with existing tools
		2.6	WEP	Minimum 6 solutions able to be executed in parallel
3 Transposition of Big Data principles and adaption to the Energy requirements	Availability of data (Involvement of data providers)	3.1	ICOM	At least 50%
	Number of standardised interfaces used	3.2	JSI	100% standardised interfaces
	Number of Open source platforms integrated (open APIs)	3.3	ICOM	100% of open APIs
	Number of technologies compatible with legacy formats/systems	3.4	EyPESA	100% solutions compatible with legacy (including smart meters)
	Solutions compatible with legacy	3.5	ATOS	Monitoring, trading and Cybersecurity solutions in real time

	External services to be connected to BD4OPEM	3.6	WEP	At least 8	
	[VOLUME] Total volume of data to be used	3.7	ODT	At least 30% of all the data collected in the pilot sites	
	[VARIETY] Average number of different data sources used in analytics	3.8	CITCEA-UPC	Demonstration of a platform which enables data variety: 1 service with at least 3 data sources	
	[VARIETY] Number of different types of data used.	3.9	ICOM	Batch data, image, video, plain text, audio	
	[VELOCITY] Real time execution processing	3.10	WEP	To improve execution time in >15% of solutions	
	[VERACITY] Pilots implementing DLT privacy services	3.11	ATOS	Specific solution “Measurement errors detection”	
		3.12	ATOS	Specific solution “Trading platform between individuals and/or professionals”	
		3.13	ATOS	Specific tasks related to authentication, blockchain and transactions developed in WP5 will be deployed.	
4	Open and modular analytics toolbox embedding SotA technologies	Number of targeted stakeholders using the analytics toolbox	4.1	SUST	9 stakeholders (Three of them DSOs with multiple data profiles available as data providers)
		Number of novel technologies/services	4.2	CITCEA-UPC	9 techs/services described in chapter 1.3.2
		Number of solutions related with the grid operation efficiency	4.3	ELCE	>80% solutions related with improved grid operation efficiency
5	Interoperability and Data management framework for incorporating heterogeneous Energy Data	Ontologies supported	5.1	ATOS	SAREF
		Number of services accessing the framework data through a unified interface	5.2	WEP	100% of the proposed services
		Study of regulation in at least four (4) countries	5.3	SUST	Four countries to be studied
		Number of target contributions to regulation/standardization	5.4	ATOS	Compliant with GDPR and regulation/standardization in each country
6	New business opportunities and Energy Market transformation	Number of software packages integrating more than one solution	6.1	SUST	Minimum 4 software packages
		Number of software packages including new and existing solutions	6.2	SUST	Minimum 4 software packages
		Specific market solutions for each pilot country in the Analytic toolbox	6.3	SUST	Specific market solutions for 4 countries
		Combination of Energy Solutions with Big Data technologies	6.4	CITCEA-UPC	To be compliant with the matrix Energy Solutions/Big Data Technologies

7 Dissemination and communication	Project documents, publications	7.1	SUST	Project Website
		7.2	SUST	Subscription to the BRIDGE initiative
	Web and social media presence	7.3	SUST	Project Website
		7.4	SUST	LinkedIn
		7.5	SUST	Facebook profile
		7.6	SUST	Twitter profile
		7.7	SUST	Participation in 6 conferences/exhibitions/trade fairs
	Active users providing feedback	7.8	SUST	10 partners providing feedback
		7.9	SUST	Minimum 2 partners members of Bridge initiative groups: Regulation and Data Management. Maximum 4 partners members of Bridge initiative groups: Regulation, Business models, Data Management, Consumer engagement.


Appendix C – Deliverables timing



Page 55 of 61

Page 56 of 61

Deliverables



BD4OPEM

LEGEND

1st week

Deliverable responsible → PR+QM

2nd week

QM+ PR → Deliverable responsible


3rd week

Deliverable responsible → GA

4th week

GA formal acceptance → Sygma

EU funding 872525



ICOM - Quality Manager

DATE

2023

JANUARY

FEBRUARY

MARCH

APRIL

MAY

JUNE

Rel N°

Name

Deadline

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

D1.1

Quality Management Plan (QMP)




30 Jun 2020

Appendix D – Word Deliverables template

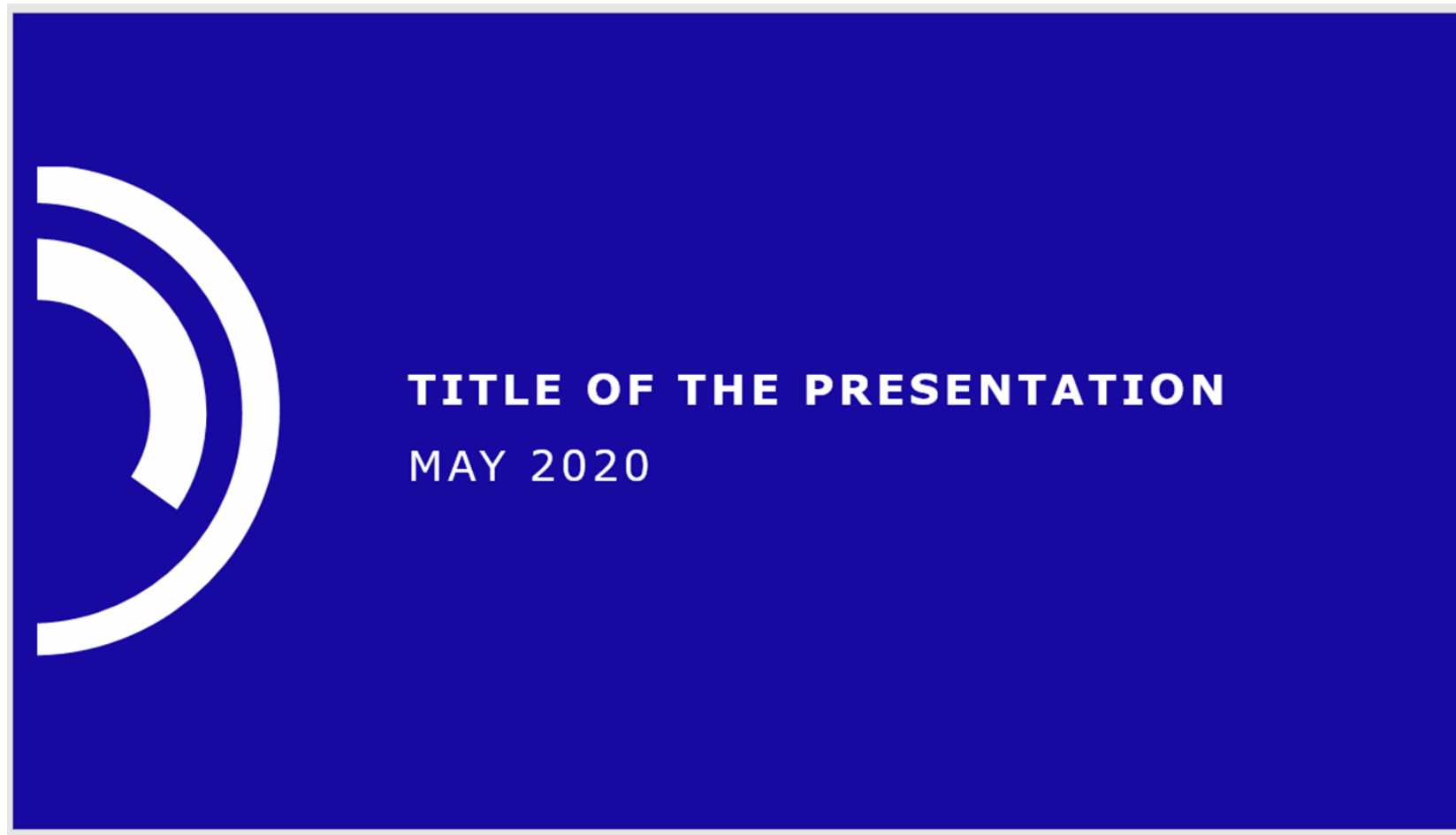
The Word template will be used for all written documents. The template contains design attributes of BD4OPEM and a format of document standard that gives a shared identity to BD4OPEM deliverables.

The guidelines for "Deliverable numbering" and "Deliverable file naming" are given in section 6.

- Cover page:

<small>H2020 project – Grant agreement n° 872525.</small>		
		
BD4OPEM		
Big Data for OPen innovation Energy Marketplace		
Deliverable XX		
YY		
Document information		
Deliverable nr	Dxx	
Deliverable Name	XXX	
Version	1.0	
Release date	DD/MM/YYYY	
Dissemination level	Public/Confidential	
Status	Draft/Peer-reviewed/Submitted/Approved	
Author	Name (partner)	
		
<small>This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No 872525.</small>		

Appendix E – PowerPoint template



Appendix F – File formatting

Common source formatting for documentation are MS Word (.docx), Excel (.xlsx) and PowerPoint (.pptx). The released version to be presented outside the Consortium to any third (EC, press, reviewers...) will be provided in Adobe Acrobat (.pdf) format. A format is available through the respective document templates, and their use is required. The following features are given:

- The standard font is Verdana 10pt
- The table of contents, chapters, sections, subsections and footnotes have a defined format
- The RGB Green colour for tables is (116,193,162)
- The RGB Blue colour for tables is (0,15,160)
- Sorting list with sublists (different levels available through indentation)
- Bulleted list with sublists (different levels available through indentation)
- List of references in IEEE style (or reference documents or related literature)
- Figure and table caption, 'Figure X' or 'Table X' in bold Verdana 9pt. Title of the figure or table without bold Verdana 9pt
- The Colour of captions is RGB Green (116,193,162)
- Table Heading (Verdana 10pt, Bold) and table text (Verdana 9pt) for table content
- Line and paragraph spacing 1,5
- Table of contents, List of Figures and List of tables content, Verdana 10pt

Minor modifications, such as italics/scaling, are allowed if required. However, no alterations of styles or fonts should be made (e.g. Calibri instead of Verdana, different headings, etc.). If a new formatting rule is required, the PC will have to be notified to add it to the standard project templates.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 872525