D1.1: Quality management plan and public project presentations

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1 Executive Summary

D1.1: Quality management plan and public project presentations focuses on providing an overview of the internal management procedures of the HIGHER project, in order to ensure efficient project execution together with high-quality project results, establishing quality assurance procedures for deliverables (as part of a Project Management Handbook), and creation of HIGHER public presentations (for general and technical audiences). Planning the management procedures contributes to the Management objectives of the project and will indirectly influence the technical implementation of the project, by ensuring an efficient working environment, as well as steering the project forward towards its final objectives.

2 Introduction

This deliverable builds on both the Grant Agreement and Consortium Agreement procedures and defines practical implementation approaches, while aiming to present the management and administrative procedures to all partners, including quality and risk management procedures. It also analyses the processes related to public project presentations, defining the specific rules that govern the dissemination actions, like publications, papers, participation and project presentation in various events, organization and participation in seminars, workgroups, etc.

2.1 Reference documents and methodology

The preparation of this document is based on the following project documents:

- HIGHER Grant Agreement (GA-101189612) and its annexes.

- HIGHER Consortium Agreement, signed by all partners.

3 Project Governance

The management structure of the HIGHER project requires an approach that will foster collaboration and allow partners to fulfil their goals. The approach chosen is based on the considerable expertise of the HIGHER project partners involved in international projects. It is built around an understanding of both the market and technical problems of the project partners and with a goal of successful implementation. The management of the technical progress, the quality of it, risks and mitigation, the financial progress and conflict resolution are paramount to the project. The management structure considers these points throughout the project life cycle. Transparency, good communication and concise consistent messaging is a key attribute to our approach for the effective management of the project.

The project management structure has been formed to allow for a tightly focused project enabling close interaction and numerous interfaces in the decision-making process.

3.1 Project Governance principals

HIGHER project adopts the following principles:

- Principle 1: Decentralized management implementation

To facilitate the implementation of the HIGHER strategy, it has been decided to follow a decentralized management implementation approach, granting the Work Package Leaders the responsibilities of the work performed in his/her Work Package and their internal organization. Work Package leaders will be tasked with the organization of WPs meetings, organization of information sharing and identification of deliverables reviewers. Dedicated WP tools, if needed, will be made available to the Work Package Leaders, but it's up to the Work Package Leaders to document and maintain these tools with the relevant information (instructions, logs…) to ensure a good communication within her/his WP.

- Principle 2: Peer review procedure of deliverables

To ensure a good level of quality of results and deliverables, a peer review procedure has already been adopted, to check the quality of project deliverable before submitting them on the Commission's Participant Portal. There will be a minimum number of two reviewers per deliverable and, where possible, the reviewers will be partners who have not contributed to the writing of the deliverable.

3.2 Project Governance structure

The organisational structure of the HIGHER Consortium consists of the following Consortium Bodies:

- Project Coordinator (PC)
- Project Manager (PM)
- Project Management Board (as mentioned in Task1.1 - alias PMB or General Assembly) as the ultimate decision-making body of the consortium
- Executive Board (EB) as the supervisory body for the execution of the Project which shall report to and be accountable to the Project Management Board
- WP Leaders (WPL)
- Scientific Advisory Board (SAB)
- The Partners

3.3 Project Coordinator and Project Manager

The Project Coordinator (PC - a member of FORTH) has the overall responsibility of the Project and ensures that the scientific, technical and go to market objectives of the project are met. The PC serves as the official point of contact between the European Commission and the Beneficiaries , while he also chairs the Project Management Board and the Executive Board Meetings (described below). The PC, advised by the Executive Board (EB), defines high-level technical strategy, and drives the project team to implement according to that strategy. In implementing this strategy, the PC also ensures that the project maintains its relevance to the EU programme and its strategic objectives. The PC is supported by the Project Manager (PM).

The Project Manager (also a member of FORTH) manages the HIGHER project, works with the Project Management Board (PMB) and the Executive Board (EB) to identify issues and propose suitable corrective actions (e.g., resource reallocation, task-force creation, etc.) that might require approval by the PMB. The Project Manager will essentially perform the following activities:

- Preparation and update of the consortium agreement between the participants (this stage has already been completed).
- Follow-up of the project planning.
- Quality Assurance & timely delivery of project deliverables.
- Participate to the communication between the project and the Commission.
- Administrative management of the project which includes the provisioning of Periodic Reports and Financial Statements as well as interacting with the Financial Department of FORTH to ensure an efficient distribution of EU funding and keeping the consortium informed along the process.
- Maintenance of project IT infrastructure to stimulate communication within project.

The contact details of the PC and PM are presented below.

Project Coordinator		Project Manager	
Name	Dr. Manolis Marazakis	**Name**	Mr. Stelios Louloudakis
Email	maraz@ics.forth.gr	**Email**	slouloudak@ics.forth.gr
Phone No.	+30 2810 391669	**Phone No.**	+30 2810 391293
Address	N. Plastira 100, Vassilika Vouton, GR - 700 13, Heraklion, Crete	**Address**	N. Plastira 100, Vassilika Vouton, GR - 700 13, Heraklion, Crete

3.4 Project Management Board (PMB)

The Project Management Board (PMB – also referred to as General Assembly in the project Consortium Agreement) is the formal decision-making body that holds the highest level of authority in the project. The PMB consists of one representative from each partner and as such, is formally responsible for successful project completion. The PMB, chaired by the Project Coordinator or a deputy, reviews the project progress on a regular basis; it has ample powers to make decisions on daily implementation issues. The PMB can also support the PC and the PM in issues related to resource allocation, the review / approval of the Periodic Reports and Deliverables and the preparation of project reviews. The PMB can also provide support to the Dissemination and Exploitation leader (WP6 leader) in the coordination and implementation of exploitation plans.

The PMB is the arbitration body of the project; the decisions of the PMB are binding for the project consortium.

3.5 Executive Board (EB)

The HIGHER Executive Board (EB) is constituted by at least one representative per partner and the Work Package leaders and is responsible for the scientific and technical work for each of the work packages in the project.

The responsibilities of the Executive Board are:

- To ensure the achievement of the technical and business objectives
- To be responsible for the overall technical consistency
- To monitor the execution and performance of the project, realize the planned deliverables, milestones, and the collection of the contributions from other partners participating in the respective Work Packages for internal and external reports
- To mobilise the required resources of all participants within the WP and between the relevant WPs
- To organise the discussions for that specific work package
- To raise critical issues to the PMB
- To advise the PMB on any needed plan adjustment

The EB, in conjunction with the PMB, can have remote meetings upon request of its members and exceptionally if needed. Any general issues can also be discussed and addressed during the monthly remote project meetings.

3.6 Work Package Leaders (WPLs)

Each HIGHER project Work Package is led by a Work Package leader, who essentially oversees:

- The organization, coordination and motivation of the work done within the WP.
- Ensuring that work remains focused on the project goals and in coherence with the other WPs developments.
- Ensuring the work is in line with the initial schedule, and manage a mitigation plan in case of deviations.
- Participating in the project global reporting by collecting and summarizing the progress and issues in their respective Work Packages.
- Representing the WP, out of the project (at review time for instance) and within the project (in other project bodies, and for coordination with other WPs).

Within the HIGHER project framework, we have devised a primary and a deputy leading contact from the partners that lead each workpackage. These contacts are presented below:

HIGHER WP Leaders			
Work-package	**Lead partner**	**Primary contact**	**Deputy contact**
WP1 (Project Management)	FORTH	Stelios Louloudakis	Manolis Marazakis
WP2 (Architecture and Verification)	SIPEARL	Olivier Déprez	Reda Fenjiro
WP3 (Hardware Platform Prototyping)	EXA	Iakovos Mavroidis	Michael Ligerakis
WP4 (Firmware and System Software)	FORTH	Manolis Marazakis	Vassilis Flouris
WP5 (Use Cases Use Cases, Architectural Extensions and Evaluation)	BSC	Xavier Teruel	Filippo Mantovani

WP6 (Dissemination, Exploitation and Standardization)	SIGMA	Peter Gray	Blagovest Tushev

TABLE 1: WP LEADERS

3.7 Scientific Advisory Board

The Scientific Advisory Board (SAB) provides an efficient, independent mechanism for quickly obtaining real-world academic and industrial feedback on project interim results. Moreover, it facilitates broader academic and industrial direct participation in identifying and pursuing exploitation opportunities. The SAB is tasked with providing input to the team on an annual basis on project technological topics which are essential to the project objectives. Such topics include:

- Relevant RISC-V open standards
- OCP standards
- Market trends related to cloud computing
- Developments in specific topics (resource management, security, networking)

This feedback is provided via SAB Meetings. The SAB is not yet complete and will be complemented by members with expertise areas that reflect the activity state-space of this project. Invitations have already been sent to specific individuals for becoming HIGHER SAB members and the final members list will be announced in the following months.

3.8 The partners

The project partners (alias project participants or Beneficiaries in DoA) constitute the key force of the project.

The responsibilities of the partners are:

- To execute and deliver the agreed work
- To participate actively in the scheduled tasks
- To pro-actively report any unforeseen deviation to WPL's and PM
- To coordinate the project contributions carried out by partner staff
- To keep track of partner commitments to the HIGHER consortium
- To report financial and technical work on time
- To timely report to the project manager any relevant problem
- To notify the Consortium of changes in the contact data of the partner

4 Project implementation & Quality Criteria

HIGHER aims to prototype and demonstrate the first all-European next-generation data center-ready processor and management modules and integrate them into cloud and edge infrastructures using European technologies and Open Compute Project (OCP) standards. This effort aims to create novel servers capable of efficiently deploying cloud and edge applications and services. By harnessing three high-end European processor and accelerator chips along with the modular OCP architecture, this project takes European computing to a new level by developing and integrating core building modules in full computing OCP-compliant deployments.

HIGHER project will be implemented through specific hardware and software components that will be developed within the project. Each component is realizable given existing and near-future high-end technology and the available expertise in the consortium. For each component, HIGHER will also make use of results from previous work of the partners (e.g., EPAC and RHEA2 processor chips from EPI-SGA2, Kubernetes on RISC-V, etc.) as well as open-source architectures and open standards used in the cloud and edge. For these reasons, the consortium is confident that i) HIGHER will be a key solution towards harnessing the collective power of resources spread across the computing continuum and ii) HIGHER is realistically achievable within the timeframe of the project. The complexity of the consortium requires a project structure that enables the inter-disciplinary and collaboration skills of the partners to flourish under controlled conditions and in line with what is expected from a Horizon Europe and European Health and Digital Executive Agency (HaDEA) funded project.

4.1 Project structure

HIGHER is using a well-proven WP structure (Figure 1) that maps to the main aspects of the project:

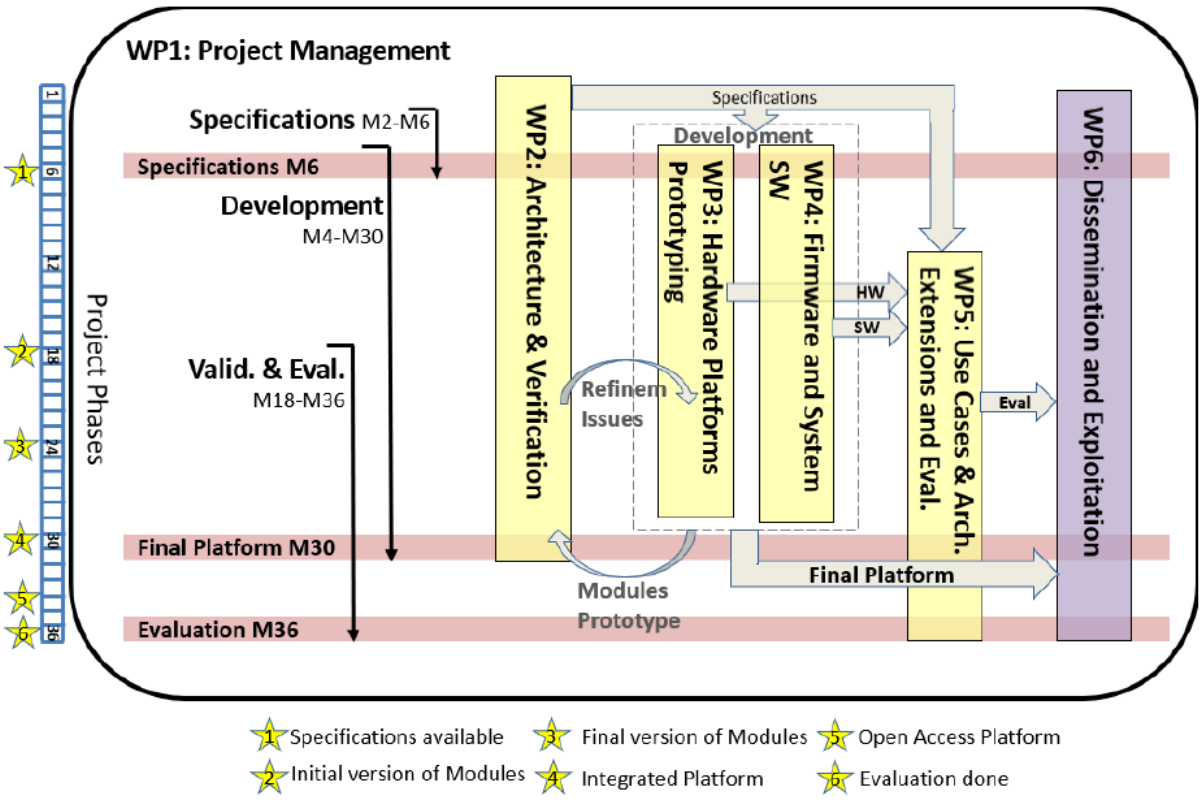


FIGURE 1: PERT CHART – WPS AND COMPONENTS INTERRELATION

The work plan starts with the Specification phase in WP2. This phase aims to refine the initial draft specifications by Month 6 (M6). The objective is to produce the final detailed technical specifications for the server platforms, aligning them with the refined requirements of the use cases, and taking into account the evolving demands and trends of the cloud and edge market.

Following the Specification phase, the Development phase will deliver the three core modules of HIGHER. Additionally, it will address the mechanical aspects of the HIGHER chassis and will provide the SW/HW integrated server. An incremental development process will be adopted, structured around three key phases:

- Initial version of Modules (M18): During this phase, the initial versions of the modules will be developed and subjected to evaluation. WP3 will oversee the development of the hardware modules, while WP4 will focus on developing and validating the boot support and providing Linux OS support for the initial functional testing of the modules, which will take place in WP2.
- Final version of Modules (M24): After 1st evaluation several optimization paths will be identified and any technical issues may arise thus a new batch with corrected & optimized modules will be provided.
- Final Integrated Platform (M30): This phase involves the integration of the tested modules into the OCP server within WP3. WP4 will handle the development and validation of secure boot support, as well as providing Linux OS support to ensure the platform is compatible with standard software stacks for cloud services. WP2 will oversee the final software/hardware integration and functional verification of the platform.

The related milestones (MS2, MS3, MS4) and deliverables outlined in WP2, WP3, and WP4 are aligned with the aforementioned three implementation phases. An analysis of the project milestones and deliverables is presented in sections 4.3 and 4.4

WP5, starting at M13, will undertake the evaluation of the hardware and software technologies developed in WP3 and WP4. WP5 will conduct advanced-stage validation and evaluation of the overall solution architecture within the context of four use cases, focusing on accelerated data processing, infrastructure and platform as a service, and CXL-based disaggregated memory environment in two phases; the results from the 1st phase will drive further design and development optimizations which will be re-evaluated in the 2nd and final phase.

Finally, WP6 will coordinate and execute communication activities and actions related to the dissemination and exploitation of the technology developed by HIGHER. It will also manage interactions with the end-to-end chain to enhance awareness and ensure impact.

4.2 Project schedule

The Gannt chart presented below shows the timelines of each WP/Task, including the deliverables (Teal) and milestones (Yellow).

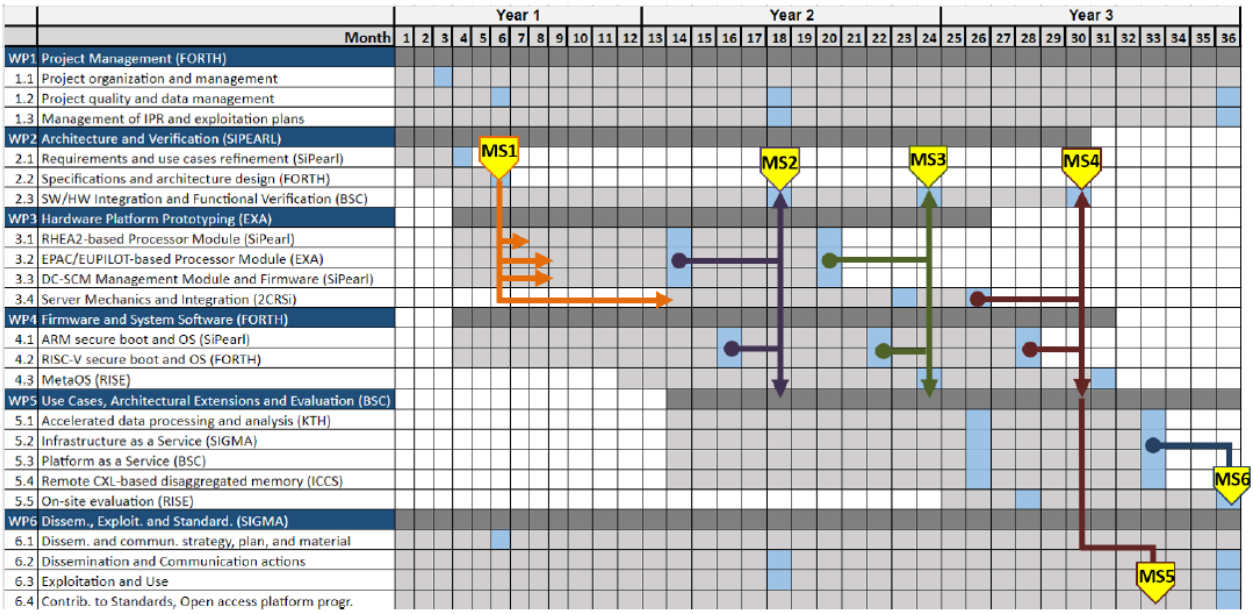


FIGURE 2: TIMING OF WPS / TASKS, DELIVERABLES AND MILESTONES

4.3 Project deliverables

Project deliverables (except for the Periodic or Final Reports) are the outcomes of Work Package technical progress. They consist of a combination of documents such as written reports, as well as non-document prototype releases, depending on their declared "Type". In the HIGHER project there are essentially two types of deliverables, namely Reports and Other, which refers to prototypes' releases, accompanied by an explanatory report. There is a total of 29 Deliverables in the HIGHER project and an overview of these deliverables, delivery details, dissemination level as well as the work package and partner that is responsible for the deliverable is presented in Table 2 below:

Del. No.	Deliverable Title	Leader	Due Date	Dissemination Level	Type
D1.1	Quality management plan and public project presentations	FORTH	3	Public	Report
D1.2	Initial Data management plan, IPR and exploitation plans	EXA	6	Sensitive	Report
D1.3	Intermediate Data management plan, IPR and exploitation plans	EXA	18	Sensitive	Report
D1.4	Final Data management plan, IPR and exploitation plans	EXA	36	Sensitive	Report
D1.5	Technical Review Report	FORTH	9	Public	Report
D2.1	Requirements and use cases refinement	SIPEARL	4	Public	Report
D2.2	Specifications and architecture design	EXTOLL	6	Public	Report
D2.3	Initial SW/HW Integration & Functional Verification	BSC	18	Sensitive	Other

D2.4	Intermediate SW/HW Integration & Functional Verification	BSC	24	Sensitive	Other
D2.5	Final SW/HW Integration & Functional Verification	BSC	30	Sensitive	Other
D3.1	Initial Rhea2-based and EPAC/EUPilot based processor modules	SIPEARL	14	Public	Report
D3.2	Final Rhea2-based and EPAC/EUPilot based processor modules	EXA	20	Public	Report
D3.3	Initial DC-SCM integrated with Rhea2 and EPAC/EUPILOT-based PMs	EXA	14	Public	Other
D3.4	Final DC-SCM integrated with Rhea2 and EPAC/EUPILOT-based PMs	EXA	20	Public	Other
D3.5	Initial mechanics of the integrated server	2CRSI	23	Public	Other
D3.6	Final integrated server	2CRSI	26	Public	Other
D4.1	Initial versions of the HIGHER Boot, OS and device drivers	FORTH	16	Public	Other
D4.2	Intermediate versions of the HIGHER Boot, OS and device drivers	FORTH	22	Public	Other
D4.3	Final versions of the HIGHER Boot, OS and device drivers	FORTH	28	Public	Other
D4.4	Initial version of the HIGHER Meta-OS	RISE	24	Public	Other
D4.5	Final version of the HIGHER Meta-OS	RISE	31	Public	Other
D5.1	Initial version of Accelerated Data Processing, IaaS, PaaS and remote memory	BSC	24	Public	Other
D5.2	Final version of Accelerated Data Processing, IaaS, PaaS and remote memory	BSC	33	Public	Other
D5.3	Final evaluation and release	RISE	36	Public	Other
D6.1	Dissemination and communication strategy, plan, and material	SIGMA	6	Public	Other
D6.2	Initial report on Dissemination and Communication actions	BSC	18	Public	Report

D6.3	Final Dissemination and Communication actions	BSC	36	Public	Report
D6.4	Initial report on Exploitation and Use	SIGMA	18	Sensitive	Report
D6.5	Final report on Exploitation and Use	SIGMA	36	Sensitive	Report

TABLE 2: LIST OF HIGHER PROJECT DELIVERABLES

As a general rule, the generation of deliverables is the responsibility of the leading partner (under the supervision of the WPL), who needs to gather contributions from WP participants as appropriate. Prior to submission to the Funding and Tenders Portal, deliverables are examined against a set of quality criteria and undergo an internal review process, as detailed in the following subsections.

4.3.1 Deliverables' Quality criteria

The deliverables' review procedure, as well as the review form (elaborated in section 4.3.2 below) uses the following quality criteria as reference:

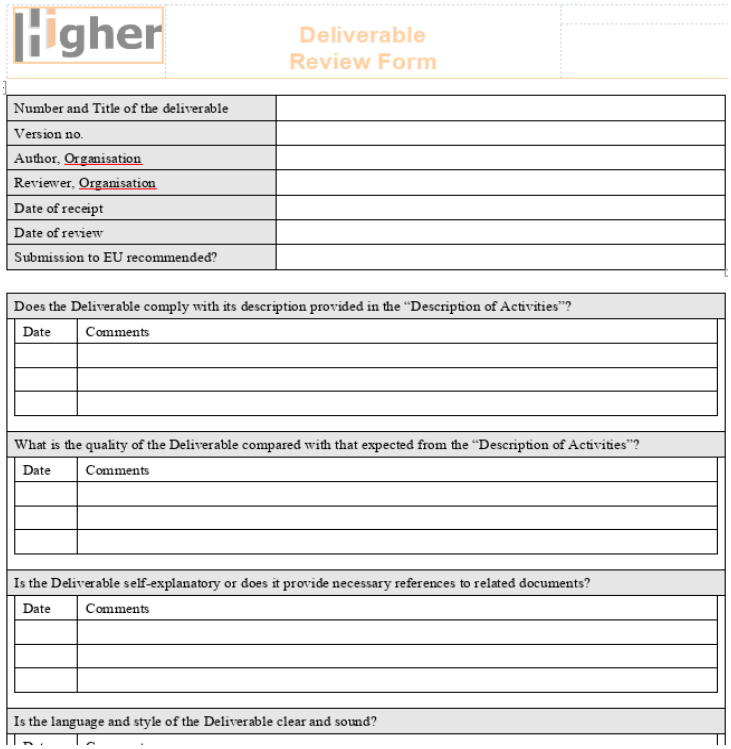
- Completeness. Information must address all aspects related to the purpose for which the information is produced. Redundancy of information must be avoided, as it may obscure the clarity of the deliverables. Information should be provided to the depth needed for the purpose of the document.
- Accuracy. Information provided in the deliverable must be evidence-based. This means that all factual information used in the deliverables should be supported by relevant and up-to-date references.
- Relevance. Information used in the deliverable should be focused on the key issues and be written in a way that takes into consideration its target audience.
- Adherence to uniform appearance. It is important that deliverables are prepared with a uniform appearance and structure so that they appear to originate from a single initiative. Therefore, the HIGHER deliverable template is to be used for all deliverables.

4.3.2 Deliverables' review process

The Deliverables review process aims to ensure that the document has been reviewed against the set of quality criteria described above. The 29 deliverables of the HIGHER project will be distributed among all 11 partners, assigning two reviewers per deliverable, such that each partner is responsible for reviewing approximately 3 deliverables, to ensure a fair workload distribution. This does not exclude other partners not appointed as reviewers to provide their comments on the different deliverables if they wish to do so. The list of deliverables and their corresponding appointed reviewers is available in the "Deliverables" folder of the HIGHER SharePoint.

A specific internal deliverable review form has been created by the PC and PM, in order to help the reviewers in providing specific feedback information to the authors. The review form contains specific questions for the reviewers to answer, like "Does the Deliverable comply with its description provided in the Description of Activities", "What is the quality of the Deliverable compared with that expected from the "Description of Activities", "Is the Deliverable self-explanatory or does it provide necessary references to related documents", etc…

A screenshot of the deliverables review form is presented below:



Deliverable Review Form

Number and Title of the deliverable	
Version no.	
Author, Organisation	
Reviewer, Organisation	
Date of receipt	
Date of review	
Submission to EU recommended?	

Does the Deliverable comply with its description provided in the "Description of Activities"?

Date	Comments

What is the quality of the Deliverable compared with that expected from the "Description of Activities"?

Date	Comments

Is the Deliverable self-explanatory or does it provide necessary references to related documents?

Date	Comments

Is the language and style of the Deliverable clear and sound?

FIGURE 3: HIGHER DELIVERABLES REVIEW FORM

4.3.3 File naming and version control

Deliverables must respect the general naming rule: HIGHER_DX.X_<doc title>_VN.n

Where:

- DX.X represents the deliverable number
- VN. represents a simplified version number and should be of one of following formats:
  - V0.x (for V0.1 to V0.9 for initial drafts versions)
  - V1.0 for the reviewed official version submitted to the Commission
  - V1.n, V2.n … for further updates

4.4 Milestones management

Table 3 presents the milestones and the related means of verification. A dedicated shared document has been created for tracking the progress of each milestone up to its completion, while milestones will be thoroughly discussed and analysed on every monthly project meeting, for tracking their status, in order to guarantee that the progress of the project is in line with project objectives.

Mil. No.	Milestone Title	WP No.	Leader	Due Date	Means of verification
1	Requirements captured & Architecture defined	WP2	SIPEARL	6	Core of D2.1 available to WP[3,4,5]: enables progress with architecture and detailed specifications, and low-level work in WP[3,4] to start (while D2.1 is being reviewed for finalization) on FPGA emulation and OS support. Core of D2.2 available to WP[3,4,5]:

					enables work to start on platform development and OS Support
2	Initial version and evaluation of hardware modules and accompanying software	WP2, WP3, WP4	EXA	18	First version of hardware modules manufactured, assembled. Bring-up and essential testing performed. Processors can power up and provide basic I/O functionality. FPGA on DC-SCM can be programmed and I/O connectivity is tested. Technical issues have been identified for potential respin of the PCBs.
3	Final version and evaluation of hardware modules and accompanying software	WP2, WP3, WP4	SIPEARL	24	Enables first partial implementation of use cases ("minimum viable product"); Connectivity of OCP modules (Arm, RISC-V) as well as cross-server/crossrack verified; demonstration available using simplified Linux OS and runtime software stack (QA tests, microbenchmarks); long-running feedback loop with verification/ integration framework effort.
4	Integrated OCP platform completed and verified against specifications	WP2, WP3, WP4	FORTH	30	Enables completion of use cases; Modules (Arm, RISCV) boot with fully-featured Linux distributions, and can host complete cloud/edge services; Continuation of long-running feedback loop with verification /integration framework effort; Preparations for open-access programme (at 3 sites)
5	Initiation of open access programme	WP6	SIGMA	33	Enables 3rd-party entities (from academia and industry) to apply for access to available HIGHER platforms; fully-featured cloud software stack; Integration with cloud infrastructure monitoring tools; long-running feedback loop with verification framework effort
6	Evaluation completed, Final Release	WP5	BSC	36	Availability of final set of open-access artifacts (hardware and software designs of HIGHER platforms, Linux distributions, distributions of cloud/edge stacks); final evaluation report available (from both internal and external users).

TABLE 3: LIST OF MILESTONES

4.5 Risks management

The project risk management process defines the activities to identify, assess, prioritize, manage, and control risks that may affect the execution of the project and the achievement of its objectives. Before risks can be managed, they must first be identified. Risks that could affect the full accomplishment of the objectives may arise due to the complex activities in the project. These have been identified in advance, and mitigation measures have been arranged for each case as detailed in the DoA. However, unforeseen risks may arise as the project evolves and their identification should be analysed through the HIGHER project lifecycle. Analysis of deliverable status, WP objectives and periodic reports will be considered as tools for risk identification. Potential risks should be identified by the Work Package Leaders and mitigation measures should be proposed and closely monitored by the Executive Board (EB). Further analysis is provided in section 3.4. Table 4 presents the initial risks identified at the proposal stage:

Risk No.	Description	WP No.	Proposed mitigation measures
1	Complexity of HW (e.g. PCB, server infrastructure) development higher than anticipated (Likelihood: L, Severity: H)	WP2 WP3	Prioritizing the focus. Primary focus is to create fully functional prototypes at the cost of less dense designs and/or larger boards. Prioritize performance levels over low-power consumption.
2	Low-level SW Development cannot take advantage of all HW unique features thus failing to meet requirements (Likelihood: L, Severity: M)	WP3 WP4	Modular SW design focusing on exposing the unique characteristics of the HIGHER Chips and overall system and using specific techniques for meeting certain requirements (e.g. low power consumption)
3	Delayed completions of platform prototypes (Likelihood: M, Severity: H)	WP4 WP5	Increased use of emulator platforms for systems software and services SW development. Proceed with software integration and application porting on compatible Arm/RISC-V server platforms
4	Functionality and performance issues identified in early testing of platform (Likelihood: M, Severity: M)	WP3 WP4 WP5	Long-running verification and integration process (part of WP2) for early detection of issues.
5	Power consumption limitations (Likelihood: M, Severity: M)	WP3 WP4 WP5	Features to be prioritized; prioritize power consumption over performance to fit in a feasible power envelope.
6	External delays in developments outside HIGHER which the project is planning to utilize (Likelihood: M, Severity: H)	WP3 WP4 WP5	Increased use of emulator platforms and earlier-generation software development vehicles (SDVs) from the EPI and EUPilot projects for SW development. Reschedule tasks and time plan based on the new status.
7	Shortage in electronic components/chips or delays due to global supply chain disruption. (Likelihood: L, Severity: M)	WP3 WP4 WP5	Early liaison with electronic component providers and PCB manufacturing providers to establish alternative plans for building HIGHER platform prototypes (early purchase, timeslot reservation). Build HIGHER platforms progressively using the available components at each time.

8	Performance and behaviour of the system depends on the characteristics of the use cases (Likelihood:Low,Severity:High)	WP5	An accurate assessment will be obtained by jointly analysing the evaluation results in all phases of the project. Evaluation is based on parameterizable real world-models and various workloads.
9	A partner resigns, underperforms, or is absorbed by another entity (Likelihood: L, Severity: H)	WP1	Monitor progress of each partner in the project. Search for a partner substitute with the right expertise or move partner responsibilities to other partners.
10	Delayed tasks and deliverables (Likelihood: M, Severity: M)	WP1 WP2 WP3 WP4 WP5 WP6	To detect delays WP Leaders will undertake a self-assessment of the WP progress every two months. Technical Manager will oversee this activity and evaluate results to identify potentially problematic tasks or milestones.
11	Issues related to IPR rights arise during exploitation (Likelihood: L, Severity: M)	WP1 WP6	The consortium agreement will constitute the primary source to resolve IPR issues. Partners have already agreed on open-source release of software and hardware interfaces that will be developed within the project.
12	Ineffective dissemination and inability to motivate adopters of HIGHER (Likelihood: L, Severity: M)	WP6	Periodically review, assess dissemination strategy, considering the level of dissemination. Share results with relevant audience. Use dissemination performance indicators to track progress.
13	Technology is not accepted by cloud, edge or Stakeholders (Likelihood: L, Severity: H)	WP6	The consortium will push towards commercialization via continuous market analysis, events, Advisory Board feedback and overall via a pan-European stakeholders group roadmap.
14	Impact on standards is not achieved (Likelihood: L, Severity: M)	WP6	HIGHER partners are actively participating in industry-oriented standardization efforts and associations, thus at a minimum HIGHER will be standards compliant.

TABLE 4: LIST OF IDENTIFIED RISKS

As with the case of milestones, a dedicated shared document has been created for reporting and managing potential risks, while any identified risks and the relevant mitigation actions will be discussed and analysed in the monthly project meetings. The document includes a table with additional fields (compared to the table presented above) for better risk management, where, apart from the proposed mitigation measures, we are also tracking whether the output is needed in other WPs/Tasks.

4.6 Periodic Reporting

General Rules for reporting:

a) Partners effort must be reported every quarter with a monthly breakdown of the number of Person-Month per WP as an ongoing monthly process.

b) Each partner must comply with the EC reporting obligations, and specifically keep records as required by the Grant Agreement (GA).

c) Each partner must provide upon request by the project management (including WP leaders), any information needed to track and assess the work done and the progress obtained.

d) Each WP, under the WPL leadership, must provide upon request by the project management any information needed to track and assess the work done and the progress obtained at WP level.

The project is divided into the following 'reporting periods':

- TRP: from month 1 to month 9 (Progress report only).

- RP1: from month 1 to month 18 (Progress and Financial reports).

- RP2: from month 19 to month 36. (Progress and Financial reports).

It is the responsibility of the partners, along with the support of the Project Coordinator (PC) , to submit a periodic report within 60 days following the end of each reporting period (M09, M18, M36). The Project Coordinator will also be responsible for the integration of data on both the progress and financial reports. Included in these reports will be:

4.6.1 Technical Reports (For M09, M18 and M36)

A technical overview of the work carried out in the reporting period, including an overview of progress towards the project objectives. In order to document the results in an efficient way, the following steps will be followed:

1) Monthly: each WP Leader formally reports on progress, achievements of specific deliverables, risk implementation and innovation management to the Project Management Board meetings, which are held remotely every month. The WP Leader will report on:

- WP objective for the period.
- Work progress over the period covered (including meetings & teleconferences).
- Deliverable achievements.
- Risk implementation and management thereof issues.
- Innovation management implementation (if appropriate).
- Delays (if any) and reasons thereof with corrective action details applied and a list of other Deliverables affected as a result.

2) M9, M18, and M36 technical reports: The Project Coordinator, Project Management Board will receive the reports and state of progress before deciding on the course of action and the remedial action to be taken, in cases where delays are identified.

4.6.2 Financial Reports (For M18 and M36)

HIGHER project partners are requested to submit budget reports at the project periodic reporting at Month 18 and Month 36 of the project. This process for uploading the relevant financial data is implemented at the EC portal and a detailed description of the relevant process will be provided to all partners in advance. It should be noted that CloudSigma AG, as a Swiss entity, currently holds third-country status (Affiliated entity). This means CloudSigma will not be required to submit financial reports directly to the European Commission, but rather to the Swiss authority, The State Secretariat for Education, Research and Innovation (SERI). However, CloudSigma is still required to support the coordinator in preparing the periodic reports.

In addition, on a quarterly basis, each partner shall provide a basic effort report, within 15 days after each of HIGHER quarters. The quarterly effort reports will streamline the process and assess the development of the project against the expected achievements. This approach is also designed to reduce the likelihood of unforeseen issues arising late in the process and will constantly be reviewed by the Coordinator and the Project Manager. This approach will facilitate each partner to comply with the reporting obligations, and specifically keep records as required by Grant Agreement (GA).

The quarterly effort reporting is implemented via an online master effort file in excel format. This master online effort file is available on the HIGHER SharePoint (ownCloud).

The project manager extracts reports before the PMB board to present and discuss the spent effort versus the workplan. This file will also be used to prepare EC review and EC periodic reports (at M18 and M36).

Periodic reporting procedures will adhere to the guidelines provided by the EC in the Grant Agreement.

4.7 Email Lists

Mailing lists have been created to facilitate discussions between appropriate Partner representatives. Subscription to the mailing lists was requested before the official HIGHER project start and it is defined and updated through the dedicated excel file at the HIGHER SharePoint.

The key mailing lists are:

- HIGHER-all (higher-all@higher-project.eu): Containing all available HIGHER contacts for communicating general project information and actions.
- HIGHER-WPL (higher-wpl@higher-project.eu): Work Package Leaders: List dedicated to WPLs, containing a primary and a secondary contact from each WPL partner.
- Work Package lists (WP1, WP2, WP3, WP4, WP5 & WP6): Dedicated emailing list per WP. It has to be noted that the WP1 (project management) mailing list is used for administrative matters, containing at least one representative from each partner.
- HIGHER-legal representatives (higher-legal@higher-project.eu), containing all of the legal representatives' contacts from each partner. This list was created for facilitating communication between legal teams during the CA preparation and signing phase and is maintained for any legal related issues for the duration of the project.
- Higher financial representatives (higher-fs@higher-project.eu): An emailing list dedicated to the projects' financial issues. Specific requests for effort and financial reporting will be sent through this list, which contains all of the partners' financial representatives.

Updates of these mailing lists on FORTH's Mailing system (Mailman) are to be requested to the FORTH staff (Coordinator and PM).

4.8 Project Meetings

The HIGHER project will be holding various types of meetings:

- Face-to-face meetings involving all partners (generally PMB and/or EB face-to-face meetings)
- Remote meetings (PMB, EB, WPs)
- Ad-hoc meetings (between two WPs for instance)
- Review Meetings
- Internal seminars and/or workshops

Preferably, meetings will be held in conjunction with other project-related meetings, to save travel costs and time. Whenever possible and appropriate, teleconferences may be used to limit travelling and expenses, as was the case of the Kick-off meeting, which was held remotely at the end of January 2025. The project partners will host the meetings in turn, based on availability and disposable budget. That is, the host partner of a meeting is responsible for organising the meeting locations and facilities, as is the case with the upcoming face to face meeting in Heraklion, Crete on the 3rd & 4th of April, 2025, hosted and organized by FORTH (Coordinator).

Remote plenary and WP level meetings have already been scheduled, with plenary meetings taking place every 4 weeks, in order to monitor project progress. Minutes of all meetings will be communicated to the Coordinator and the PMB. A calendar is available at the owncloud site to add all the meeting dates and it is maintained and updated by the Project Manager (PM).

4.9 Project Portal (HIGHER SharePoint)

An "ownCloud" password-protected project Portal has been implemented by partner CLOUDSIGMA to facilitate the exchange of project documentation and news. The portal is available with username and password authentication to all project participants at the following link: https://higher-project.owncloud.online/

It is managed by the Coordinator and the Project Manager; however, all Partners are provided with access and edit rights to allow for ease of updating project progress and sharing documents. The sharepoint includes a contacts' list of all participants, while "OnlyOffice" has also been embedded, in order to facilitate online document viewing and editing and is also used as a collaboration tool during remote meetings.

The sharepoint currently hosts essential project documents, like the Grant and Consortium agreements, upcoming deliverables files, project-related templates and logos (for deliverables, deliverable review forms, meeting minutes forms, presentations, etc…), dissemination materials (project presentations, project poster) to be used for dissemination events, as well as meetings materials and information.

Access rights are to be requested to the FORTH staff (Coordinator and PM).

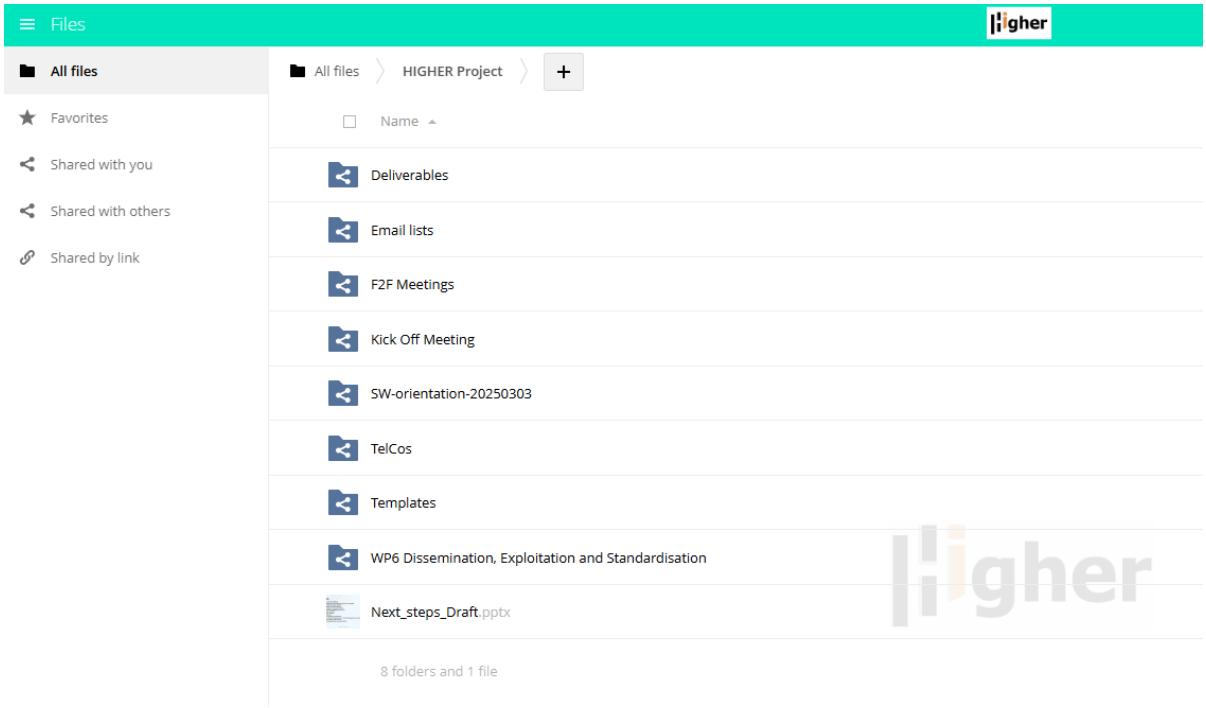


FIGURE 4: HIGHER SHAREPOINT SCREENSHOT

4.10 Public Project Website

An initial version of the HIGHER project website has already become available to the public, through the following link: https://www.higher-project.eu/.

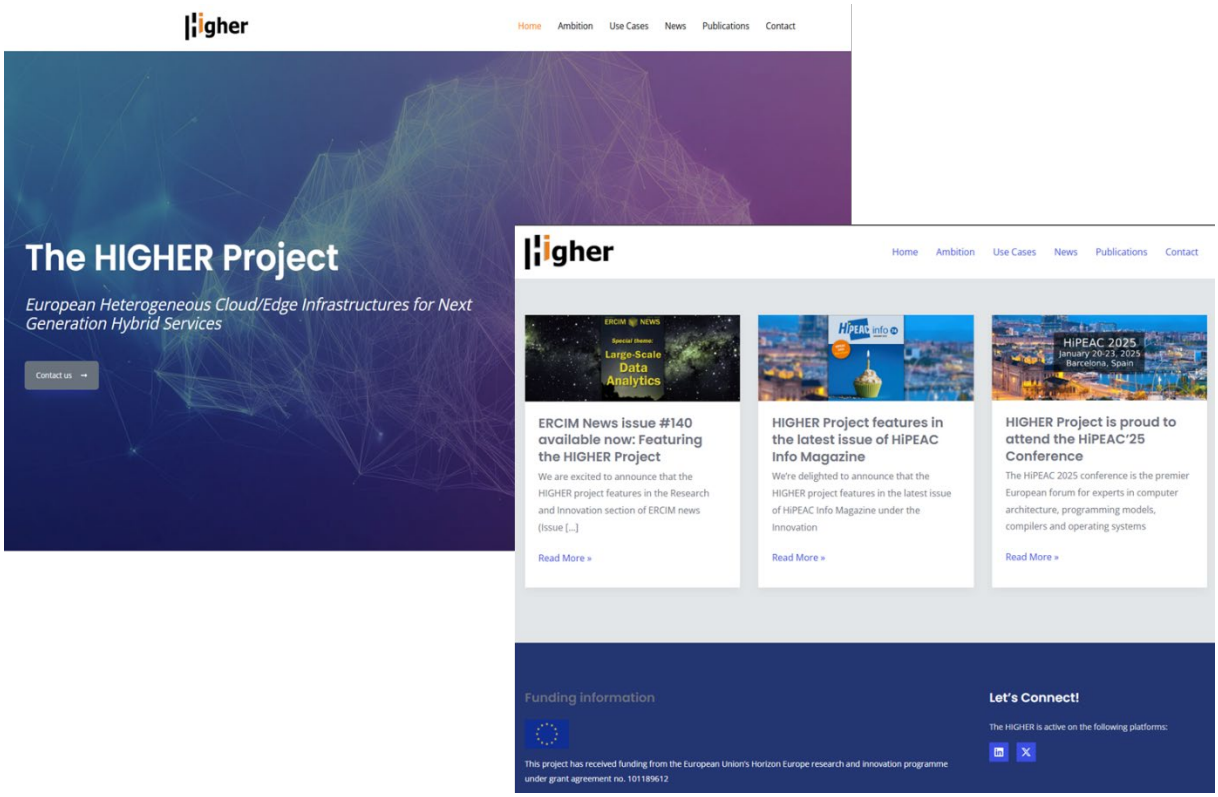


FIGURE 5: HIGHER WEBSITE SCREENSHOTS

The screenshot above (Figure 5) depicts the "main" and the "news" page of the project website. It currently contains general information about the project (overview, consortium, individual partners' roles within the project, etc…), as well as attended and future dissemination events. The project's official twitter and LinkedIn accounts are also available through all project pages. Other sections of the website include information related to the project's architecture, the use cases, challenges to address, ambition, as well as the main contacts of the coordinator (FORTH). Public project deliverables and dissemination materials will be available through the "Publications" page. The project website will be updated in the following weeks, in order to include additional and more detailed information about the project and its developments.

4.11 Gitlab

A Gitlab repository (hosted by CloudSigma) has been created to facilitate the exchange of technical documentation during the project´s implementation. The repository includes functionalities such as wiki, issue-tracking, and CI/CD pipeline that can be used throughout the project. The PC and PM can grant access to the Gitlab repository. Link: https://gitlab.higher.cloudsigma.com/higher-devs

5 Public project presentations

5.1 Rules

The complete rules and obligations for dissemination are covered in section 8.4 of the Consortium Agreement and article 17 of the Grant Agreement. However, a summary of the critical elements is provided below.

In particular:

1) At least 30 calendar days prior notice of any dissemination activity shall be given to the other Partners concerned.

2) Following notification, any of those Partners may object within 21 days of the notification.

3) Dissemination obligation: each beneficiary must 'disseminate' its results by disclosing them to the public.

4) Open Access: Each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to its results.

5.2 Checking of Publications

- **Purpose**

The purpose of the Check of Publications is to guarantee the right of protection of knowledge for all Consortium Partners. Partners and the European Commission have the right to learn about any planned publications with 30 days prior notice allowing them to exercise their right of objection if they consider the publication to harm the protection of their knowledge.

- **Responsibilities and Components**

The term "Publication" refers to any abstract, scientific paper, oral presentation, press release or similar document to disseminate to any individual or group outside of the Consortium.

The Author of the publication is responsible for initiating the Check of Publications procedure. The Project Manager is responsible for monitoring the procedure and ensuring that the rules of the EC-GA and CA are followed if a PMB Member justifies an objection to said publication.

In general, dissemination activities shall be compatible with the protection of intellectual property rights, confidentiality obligations and the legitimate interests of the owner(s) of the results.

Articles accepted for publication or already published articles will be referenced on the "Publications" page of the HIGHER website.

- **Procedure and Timing**

1) The Author emails the PMB, PC & PM (with subject: HIGHER Publication) that includes the foreseen title, list of contributing authors, destination (where to publish), an idea of the content (e.g., abstract) and the purpose of the publication (e.g., "publication of first results of XX's doctoral thesis within the project").

2) The PMB members individually identify if the intended publication presents a conflict of interest through use or publication of confidential information. Any Partner may object to the publication; however, they must justify their objection. Moreover, the Partner must object in writing to the Author (with the PM and PC in copy) at which point the process set forth in the Consortium Agreement begins.

3) The Author informs the Project Manager and the Dissemination Work Package Leader (WP6) when the planned publication has been accepted for publishing (for monitoring purposes).

4) The Author registers the publication according to the next chapter's indications.

- **Publications Acknowledgement**

According to GA Article 17, unless otherwise agreed with the granting authority, communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate). The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text. Apart from the emblem, no other visual identity or logo may be used to highlight the EU support. When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.

For the purposes of their obligations under Article 17 of the GA, the beneficiaries may use the emblem without first obtaining approval from the granting authority. This does not, however, give them the right to exclusive use. Moreover, they may not appropriate the emblem or any similar trademark or logo, either by registration or by any other means.

Any communication or dissemination activity related to the action must use factually accurate information. Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency (HaDEA). Neither the European Union nor the granting authority can be held responsible for them."

- **Press Releases**

Press Releases must follow the same Check of Publications procedure; however, to coordinate a simultaneous release in multiple languages, Press Releases should be submitted to the Dissemination Work Package Leader (WPL) for review one week prior to release.

5.3 Presentations' template

A dedicated template for presentations has been created since the beginning of the project, in order to be used for all project related dissemination activities and presentations, as it was also used for the HIGHER kick off meeting. The screenshots presented below depict the design of the presentation template.

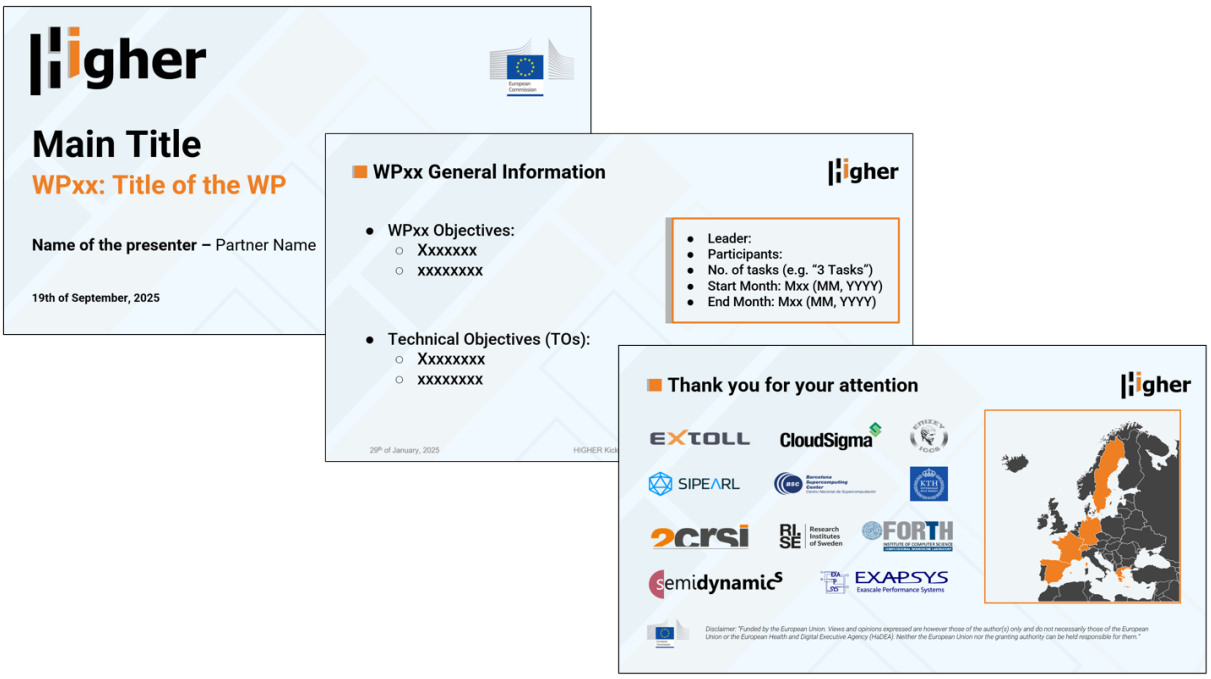


FIGURE 6: HIGHER PRESENTATIONS TEMPLATE

6 Conclusions

In this deliverable we have analyzed the Project governance, in terms of principals to be followed throughout the project duration and structure as well as hierarchy of the consortium bodies, which are essential for discussing and deciding key aspects of the HIGHER project. In addition, we have reported the project implementation process and the quality criteria that the consortium needs to follow towards a successful result and completion of the project. Finally, we have provided an analysis of the rules and the steps that need to be followed for any kind of project related publications.

To the extent that it is deemed necessary by the Consortium, the procedures will be reviewed and updated accordingly, to ensure that the management objectives are met and that the implementation of the project is carried out in an efficient manner.

Appendix 1: Acronyms and Abbreviations

Term	Definition
CA	Consortium Agreement
CI/CD	Continuous Integration / Continuous Delivery
EB	Executive Board
EC	European Commission
EXA	Exascale Performance Systems – EXAPSYS IKE
GA	Grant Agreement
FORTH	Foundation for Research and Technology - HELLAS
SAB	Scientific Advisory Board
HaDEA	European Health and Digital Executive Agency
PC	Project Coordinator
PM	Project Manager
PMB	Project Management Board
SMD	Semidynamics Technology Services SL
BSC	Barcelona Supercomputing Center
WP	Work Package
WPL	Work Package Leader
SIGMA	CLOUDSIGMA AG
ICCS	Institute of Communication & Computer Systems (N.T.U.A.)
RISE	Research Institutes of Sweden AB
KTH	Kungliga Tekniska Hoegskolan

TABLE 5 - ACRONYMS AND ABBREVIATIONS