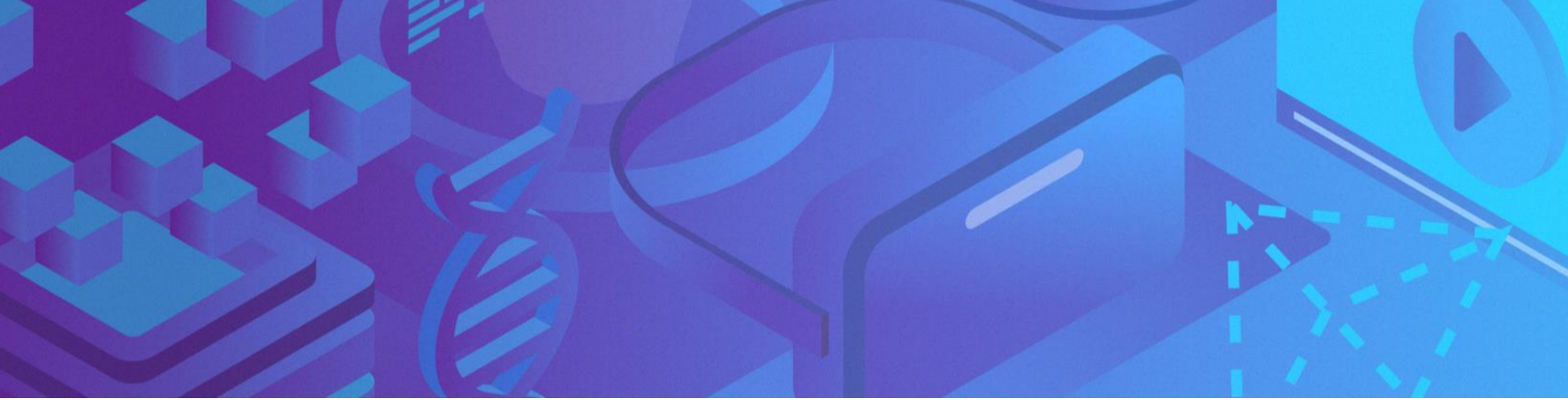

D5.1 - OPEN CALL TOOLKIT

Revision: v 3.0

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Reviewers	Vivien Helmut (DT)
Abstract	This document provides general information on the OPEN CALLS organised within the SPIRIT project. In particular, it focuses on information relevant to the application for the first SPIRIT Open Call (OC1).
Keywords	OPEN CALLS; OC1; FSTP; Financial Support for projects carried out by third parties

DISCLAIMER

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PU	*Public, fully open, e.g. web (Deliverables flagged as public will be automatically published in CORDIS project's page)*	✓
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* R: Document, report (excluding the periodic and final reports)

DEM: Demonstrator, pilot, prototype, plan designs

DEC: Websites, patents filing, press & media actions, videos, etc.

DATA: Data sets, microdata, etc.

DMP: Data management plan

ETHICS: Deliverables related to ethics issues.

SECURITY: Deliverables related to security issues

OTHER: Software, technical diagram, algorithms, models, etc.

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EXECUTIVE SUMMARY

This document provides general information on the OPEN CALLS organised within the SPIRIT project.

In particular, it focuses on information relevant to the application for the first SPIRIT Open Call (OC1).

OC1 aims to engage different actors, including SMEs and start-ups, industry, universities and scientific and research organisations, to validate and test third-party applications on the first release of the SPIRIT platform.

An updated version of the TOOL KIT will be published close to the launch of OPEN CALL 2 OC2.

The document is as updated as of the date of submission on the EU portal. For contractual purposes, the official version posted on the SPIRIT website on the OPEN CALL page[1] will be binding.

[1] https://www.spirit-project.eu/apply-for-funding/

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ABBREVIATIONS AND ACRONYMS

3GPP	3rd Generation Partnership Project
6DoF	6 Degrees of Freedom
AMR	Autonomous Mobile Robot
API	Application Programming Interface
AR	Augmented Reality
BBU	Broadband Unit
CNF/VNF	Container Network Function/Virtual Network Function
CPU	Central Processing Unit
DASH	Dynamic Adaptive Streaming over HTTP
DMP	Data Management Plan
FSTP	Financial Support for projects carried out by Third Parties
GDPR	General Data Protection Regulation
GHz	Gigahertz
HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
ITU	International Telecommunications Union
K8s	Kubernetes
MR	Mixed Reality
LL-DASH	Low-Latency DASH
LTE	Long-Term Evolution
NOC	Network Operations Centre
OC	Open Call
OC1	1st Open Call
OC2	2nd Open Call
QoE	Quality of Experience
QUIC	Quick UDP Internet Connections

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R16	Release 16
RAM	Random Access Memory
RAN	Radio Access Network
REST	Representational State Transfer
RTP	Real-Time Transport Protocol
SDN	Software Defined Networking
SDK	Software Development Kit
SME	Small and Medium-sized Enterprise
SPIRIT	Scalable Platform for Innovations on Real-Time Immersive Telepresence
TCB	Trusted Computing Base
TCP	Transmission Control Protocol
TPP	Third-Party Project
UDP	User Datagram Protocol
VM	Virtual Machine
WebRTC	Web Real-Time Communication
XR	Extended Reality

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1 SPIRIT OPEN CALLS AND PROJECT OVERVIEW

1.1 SPIRIT OPEN CALLS

The SPIRIT (Scalable Platform for Innovations on Real-time Immersive Telepresence) project, funded under Horizon Europe Cluster 4-2021-HUMAN-01 provides *Financial Support for projects carried out by Third Parties* (FSTP) selected through the Open Calls mechanisms.

An indicative number of5 projects on use cases (applications) for testing and demonstration or on contributing to the SPIRIT platform, respectively, will be financially supported through the Open Calls mechanisms.

Two waves of Open Calls (OCs) are foreseen. The first wave (SPIRIT-OC1) will be launched at the beginning of 2024, targeting use cases to validate and test their individual applications on, or contributing to, the *first release* of the SPIRIT platform. The second wave (SPIRIT-OC2) will be launched in November 2024 targeting validation and testing over, or contributing to, the *enhanced version* of the SPIRIT platform.

1.2 SPIRIT PROJECT

Telepresence can be deemed as the next generation of communication applications that will substantially enrich immersive experiences in both human-to-human and human-to-machine interactions with blurred boundaries between the physical and the virtual world. Immersive technologies are transforming our daily lives, redefining how we interact with the world and each other, both in physical and virtual spaces. However, immersive telepresence applications are still in their infancy and have not yet reached the mass market. This delay is attributed to challenges in the application platform and the supporting network, hindering the seamless presentation, processing, and delivery of immersive content on a large scale.

The **SPIRIT project** aims to tackle these challenges head-on. Its primary focus is on overcoming the limitations in both the application platform and the underlying network support to ensure the smooth presentation, processing, and delivery of immersive telepresence content at a significant scale. The project's mission is to establish Europe's inaugural multisite and interconnected framework capable of supporting diverse features in collaborative telepresence.

Leveraging existing application platforms and network infrastructures developed and validated in laboratory settings by project partners, the SPIRIT consortium seeks to address key technical challenges. The goal is to advance all major aspects of telepresence technologies, aiming for the maturity of a system prototype demonstrated in operational environments. *The SPIRIT project places emphasis on innovations in the areas of networking protocols and mechanisms, transport and application/content techniques as well as security and privacy mechanisms to facilitate large-scale telepresence application operations.*

A mixed consortium is working on the SPIRIT project. In particular, the partners bring in advanced expertise and components in the fields of telepresence applications, networking, extended reality (XR) and multimedia communications.

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TABLE 1: SPIRIT PROJECT CONSORTIUM COMPOSITION

PARTNER	COUNTRY
Interuniversitair Micro-Electronica Centrum (IMEC)	Belgium
Ericsson GmbH (EDD)	Germany
Deutsche Telekom AG (DT)	Germany
Fraunhofer-Institut für Nachrichtentechnik, Heinrich-Hertz-Institut (HHI)	Germany
Universität Klagenfurt (UNI-KLU)	Austria
AFFILIATED ENTITIES OF DEUTSCHE TELEKOM	
T-Systems International GmbH	Germany
Deutsche Telekom Security GmbH	Germany
ASSOCIATED PARTNERS	
University of Surrey (UoS)	United Kingdom
AWTG Ltd	United Kingdom
Digital For Planet (D4P)	Switzerland

The consortium is actively working on creating a distributed, interconnected testbed infrastructure across two geographical locations in Germany (Deutsche Telekom, Berlin) and the United Kingdom (University of Surrey, Guildford). This infrastructure will facilitate extensive testing of diverse telepresence applications in real-world Internet environments. The network infrastructure will host two mainstream application environments currently based on WebRTC.

To boost awareness and adoption of the SPIRIT platform, the project provides the opportunity to third parties to utilise the project components/testbed in their applications/frameworks to test and validate their collaborative telepresence applications in relevant and operational environments, or to contribute to and extend the platform. At least 25 project use cases will be financially supported covering a minimum of five different vertical sectors, for example healthcare, retail, education, training, entertainment, manufacturing, and tourism.

To reach this goal, the project will provide Financial Support for projects carried out by Third Parties (FSTP) selected through the Open Calls mechanisms.

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1.3 SPIRIT TECHNICAL INFORMATION

Figure 1 below presents an overview of the targeted SPIRIT scope in terms of innovation and development. On the network infrastructure side, Deutsche Telekom (DT) and the University of Surrey (UoS) provide respective testbed facilities to constitute the end-to-end SPIRIT testing network infrastructure. Both sites are equipped with integrated 5G-based network access services as well as virtualised/containerised computing environments in order to support the operation of use case applications. These two testbeds will also be interconnected, allowing real-life, Internet-scale testing of the developed telepresence applications. The layer of transport support enables tailored customisation of transport protocols (TCP/UDP/IP, RTP, QUIC, WebRTC, LL-DASH) and their configuration of control parameters towards optimised and stable application performances. It must be noted that, in the SPIRIT-OC1 round, the two testbed sites are not yet interconnected with full capacity (high bandwidth, low latency) and for transport currently only the standard TCP/IP protocol suite and WebRTC are available.

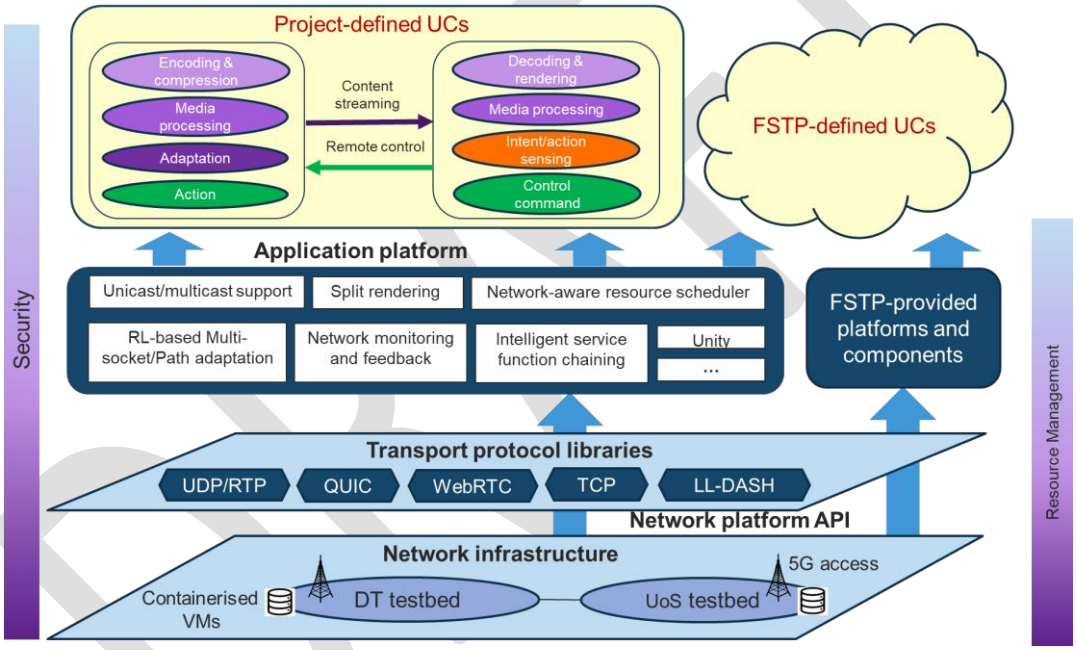

FIGURE 1: SPIRIT PLATFORM AND OPEN CALL (FSTP) PROJECTS INTEGRATION

The application platform components are available to provide various support for the operations of telepresence applications. Examples (components developed by the project partners until SPIRIT-OC1) include resource monitoring and feedback, data stream path adaptation based on learning user intents, split rendering functions, and enhancements on Unity components. During the project lifetime additional component functions will be developed by both the project team and third-party participants for supporting respective use case application operations. Concerning project-defined use cases, we classify them into human-to-human and human-to-machine oriented applications. On top of this, we further show in the diagram typical application-specific functions on the source and destination sides, such as encoding/decoding, content adaptation, and viewer behaviour sensing. For human-to-machine oriented cases, control command functions and action functions are also embedded.

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SPIRIT-OC1 participants are invited to test, develop further, and validate their specific use cases (applications) on the first SPIRIT platform or to contribute transport or application components that enhance/extend that platform (FSTP-provided platforms and components).

More information is to be found in the following sections. In addition, the material available on the SPIRIT website on the deliverables[2] page provides an in-depth description of the technical results of the project. Of particular relevance are:

D2.1 Use Case Requirements, System Architecture and Interface Definition (First Version)[1]

D3.1 Innovation Platform Enablers (First Version) [2]

D4.1 SPIRIT Platform (First Version) [3]

1.3.1 Testbeds

The SPIRT project provides two relevant and operational testbeds providing 5G and Edge-Cloud infrastructures for project use cases and the Open Call projects: the Deutsche Telekom (DT) and the University of Surrey (UoS) testbed sites. These two testbed sites can individually host specific collaborative telepresence applications for local tests, validation, and demonstrations. They are also expected to be interconnected, enabling distributed testing and performance evaluations between the two sites in the SPIRIT-OC2 round.

1.3.1.1 Deutsche Telekom 5G Testbed

The Deutsche Telekom 5G Testbed is located in Berlin, Germany, at the “Siemensstadt Square” district where Deutsche Telekom collaborates with the Werner von Siemens Centre and various other partners coming from industrial, public and educational sectors.

The DT testbed offers an area of around 500 m² outdoor space and 1000 m² indoor space. The indoor area as well as the outdoor area is covered by a private 5G Standalone Network. The 5G network is configured for the 3.7-3.8 GHz industrial spectrum and has been approved by the German Federal Network Agency. The virtualised 5G core supports the 3GPP standard up to Release 16. The indoor space is also partly covered with WiFi-5 and WiFi-6 and can be used to connect devices that are not capable of 5G.

Computing power is provided by an edge server that is located on premise and is connected via fiber to the 5G network. The server runs containerised applications in a Kubernetes cluster. There are two Nvidia T4 16 GB Graphic Cards, 96 GB of RAM and 24 CPU cores (3 x Intel(R) Xeon(R) Gold 6226R CPU @ 2.90GHz) available in the cluster that are being shared between all tenants.

[2] https://www.spirit-project.eu/deliverables/

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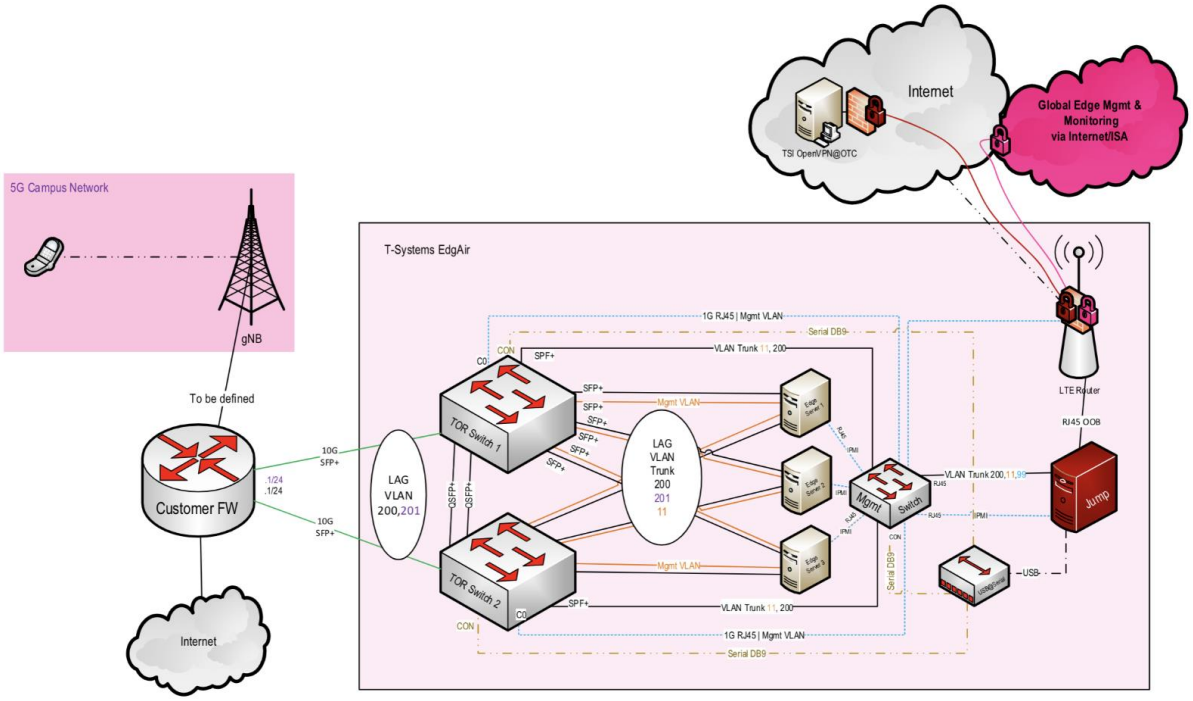

FIGURE 2: DT TESTBED NETWORK INFRASTRUCTURE

Participants can deploy their software on the local edge cloud. To do so, they get dedicated access to the Rancher UI, the Kubernetes management platform, to remotely deploy and manage their applications in the cluster. The testbed site is accessible from the Internet and gives partners the opportunity to deploy their software without the need of being onsite. The site uses multi-tenancy for ensuring both privacy and security.

1.3.1.2 The University of Surrey 5G Testbed

As shown in Figure 3, the network infrastructure provided by the 5G/6G Innovation Centre (5G/6G IC) at the University of Surrey, Guildford, UK, is a fully operational network consisting of both self-contained 4G and 5G radio access network (RAN) and the core network components following 3GPP standards (up to R16). The outdoor coverage consists of 40 LTE sites with 23 centralised BBUs hosted in the 5G/6G IC, supporting 2.6GHz band 28 and 38 for a total of 120 cells. Furthermore, there are 3 outdoor NR sites in the 3.5GHz band n78 for a total of 9 cells and another 3 sites in the 3.7GHz band n77 consisting of 3 cells, with respectively, 3 and 2 centralised BBUs hosted in machine rooms in the 5G/6G IC. Indoor coverage is provided by 4G/5G femto-cells consisting of several 48 remote RUs, 4 remote hubs and 4 BBUs, distributed across the 5G/6G IC. This testing network infrastructure has already been externally connected with a number of external sites for supporting different 5G application use cases.

Furthermore, the testbed hosts a 3GPP compliant network operations centre (NOC) to orchestrate communication services over end-to-end 5G network slices. The NOC enables zero-touch management, commissioning and decommissioning of slices through creation and lifecycle management of CNF/VNF, for core network, access network as well as the transport network via orchestration and reconfiguration of software-defined networking (SDN). Monitoring of metrics from the transport network, network function instances and virtualisation infrastructure is achieved via Prometheus and ad-hoc REST APIs, integrated with Grafana, for live visualisation of the performances of the end-to-end traffic through the NOC user interface.

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TM Forum open APIs are used to provide service ordering for B2X either via UI or client applications. The 5G/6G IC plans to expand management and orchestration activities. A containerised virtual machine (VM) based computing environment is provisioned for hosting different telepresence applications.

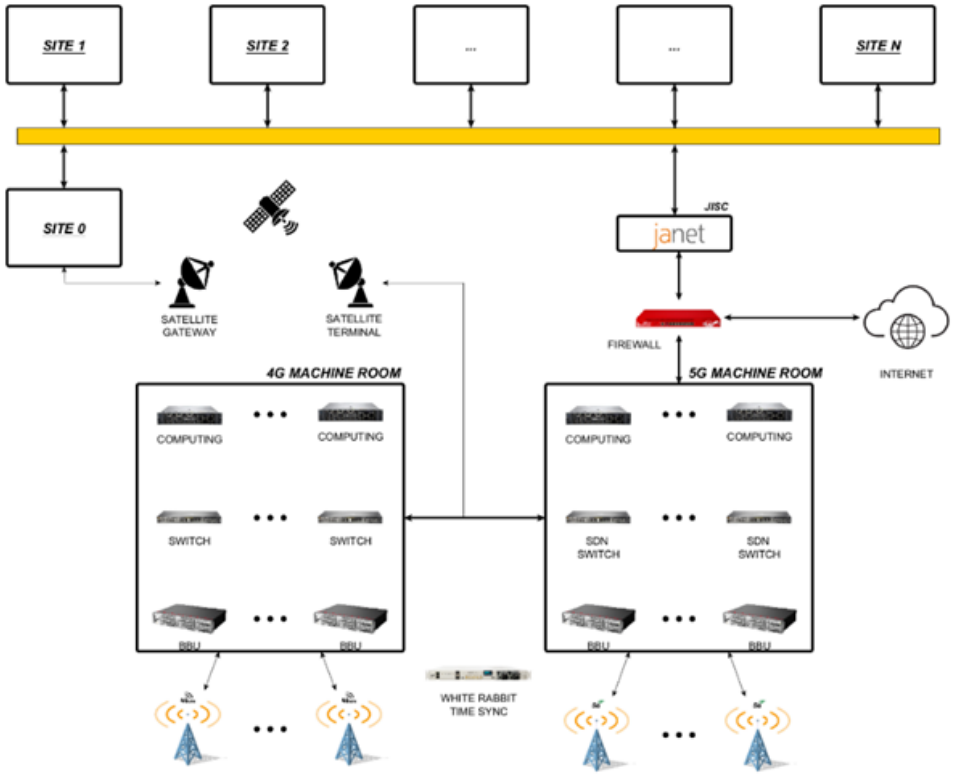

FIGURE 3: UNIVERSITY OF SURREY NETWORK INFRASTRUCTURE

1.3.2 Application Platforms

Different platforms to support immersive telepresence applications were implemented and are set to be extended within the SPIRIT project. The applications supported by the platforms are based on use-case scenarios in which two peers can take part in conversations set in AR/XR environments embedded in 5G network testbeds.

The solutions for immersive telepresence application platforms by Ericsson (EDD) and Fraunhofer Heinrich-Hertz Institute (HHI) presented in the following sections are available for the first version of the SPIRT platform. These two application platforms are integrated into the network testbed of Deutsche Telekom (DT) to allow project partners and Open Call participants to develop, implement or test new innovations within one controlled test environment. Content such as lifelike 3D representations of the parties or realistic animated avatars, described in the D3.1 “Innovation Platform Enablers (First Version)” report [2], are the main elements of the communication between application platform users. The real-time media and data transport between peers of the application platforms is mainly handled via WebRTC.

In addition, the UoS 5G/6G Innovation Centre (5G/6G IC) provides a fully implemented immersive telepresence application use case integrated in the 5G network testbed hosted at the University of Surrey (UoS) and described in the D2.1 “Use Case Requirements, System

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Architecture and Interface Definition (First Version)" report[1] and the D4.1 "SPIRIT Platform (First Version)" report [2].

The application platforms can be seen as the basis of the SPIRIT platform, which will be extended by further innovation platform enablers from third parties and the project partners. These may include, but are not limited to, innovations in various areas of immersive telepresence, including content, application, transport, network and/or security. Examples of innovation platform enablers developed by the project partners for the first version of the SPIRIT platform are described in the D3.1 "Innovation Platform Enablers (First Version)" report[3].

1.3.2.1 Holographic Communication

Digital real-time communication between two humans using XR (Extended Reality) devices is one use case supported by the SPIRIT platform. In a professional environment, for example, holographic communication can transform collaborations by providing lifelike 3D representations of remote participants. The immersive nature of 3D visualisation fosters a collaborative environment where individuals can share ideas, engage in discussions, and work together on projects as if they were physically in one place. The ability to visualise the spatial arrangement of team members enhances the collaboration process and contributes to more innovative and people-centric outcomes.

A simple overview of the application platform implemented to support holographic communication use cases is presented in Figure 4:

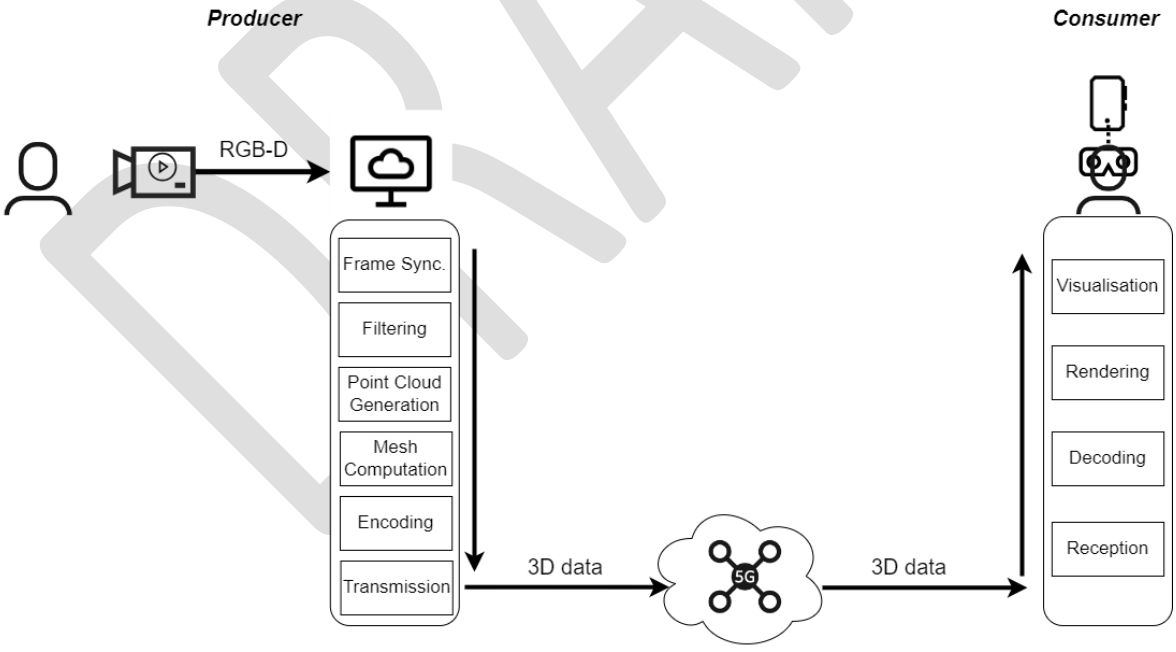

FIGURE 4: HOLOGRAPHIC COMMUNICATION PLATFORM

The application platform makes it possible to deliver immersive content in real-time using consumer-grade devices.

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In the given figure, the producer side comprises an individual who is being captured through a depth camera. This data is then processed by a PC or cloud system using a Python application. The data processing involves complex steps that include 3D object generation and compression of the data. The resulting 3D data, which is in the form of encoded meshes, is then transmitted over wired or wireless network access technologies, such as 5G, to another user, known as the consumer.

On the consumer side, the 3D data is received on a mobile device that is connected to AR glasses via USB-C. The end devices are responsible for decoding, rendering, and visualising the received data, which includes the lifelike 3D representation of the user on the producer side. The respective application is based on Unity.

To set up a direct communication link between the peers and thus avoid the need for additional server units and minimise additional latency paths, real-time streaming between the user on the producer and consumer side of the application platform is based on the WebRTC[3] communication framework, more specifically the WebRTC data channel API allowing for flexible transport configuration such as maximum transmission time, number of retransmissions or in-order and out-of-order delivery. This gives the flexibility to support partially reliable and non-reliable data transmission based on the use case requirements.

In summary, the application platform is offered in the form of two applications, a producer application and a consumer application, that handle data acquisition, processing, transmission and rendering. More specifically, the implemented use case offers real-time holographic streaming with the flexibility of manual configuration for both the quality and data size of the content as well as the reliability of the transmission. This also includes the ability to achieve 3D visualisation through processing techniques that can be tailored to network and Quality of Experience (QoE) requirements.

1.3.2.2 Multi-source Holographic Telepresence

This section is about the components supporting applications using live teleporting people from multiple remote Internet locations to a common virtual space of the audience such that the audience can have the immersive and multisensory perception that everyone is located in the common physical scene.

There are two key components for enabling a multi-source live holographic telepresence application based on point-cloud volumetric media: a frame synchronisation function and a RESTful interface to accept runtime parameter settings and queries. The frame synchronisation function is responsible for rendering holographic frames from multiple independent sources. For frames from different sources, the MEC server can distinguish them based on their source IP addresses and record their timestamps separately. Based on a predefined synchronisation threshold (e.g., 30ms) and the real-time timing of each source, the MEC server can perform operations such as pairing, buffering, and discarding of multi-source frames to ensure that the synthesised frame exhibits optimal performance. Meanwhile, this frame synchronisation function can also be configured through RESTful interfaces. The frame synchronisation threshold and required key performance metrics (e.g., throughput, playback latency) can be set using the POST method and queried using the GET method through an authorised network management interface. Figure 5 below presents the effect of the developed multi-source holographic telepresence application scenario.

[3] https://webrtc.org/

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FIGURE 5: ILLUSTRATION OF THE MULTI-SOURCE TELEPRESENCE APPLICATION

1.3.2.3 Real-time Animation and Streaming of Realistic Avatars

The realistic volumetric representation of human beings has become an important topic in the last few years. The increasing demand for real-time telepresence scenarios presents a valuable opportunity to develop applications that portray the users in an immersive way. This, in combination with the use of Mixed Reality (MR) devices, guarantees a better overall experience.

Such applications, however, present novel technical challenges that need to be overcome to ensure fluent and comfortable communication. The significant amount of data that a photorealistic avatar comprises, and the variable conditions of the network are two of the hurdles that need to be addressed. Besides this, the animation of the three-dimensional object must be done in real-time, taking some kind of media as an input (audio, video, text, 6 Degrees of Freedom (6DoF) position). This brings additional flexibility to the representation.

This component supports scenarios in which the avatar is animated by an animation library that makes use of a neural network. The input to this library is media captured on a mobile device, the producer. The rendering of the object is split between a cloud server and the consumer client device, to reduce the amount of data to be transmitted. By doing this and ensuring proper synchronisation of the position of the user device on the server, only 2D video is sent through the network, reducing enormously the required bandwidth. Low-latency communication is guaranteed by using congestion control algorithms and transmission technologies such as WebRTC. The local user device performs the integration of the avatar into the real world and allows the user to interact with it. Figure 6 shows this general architecture.

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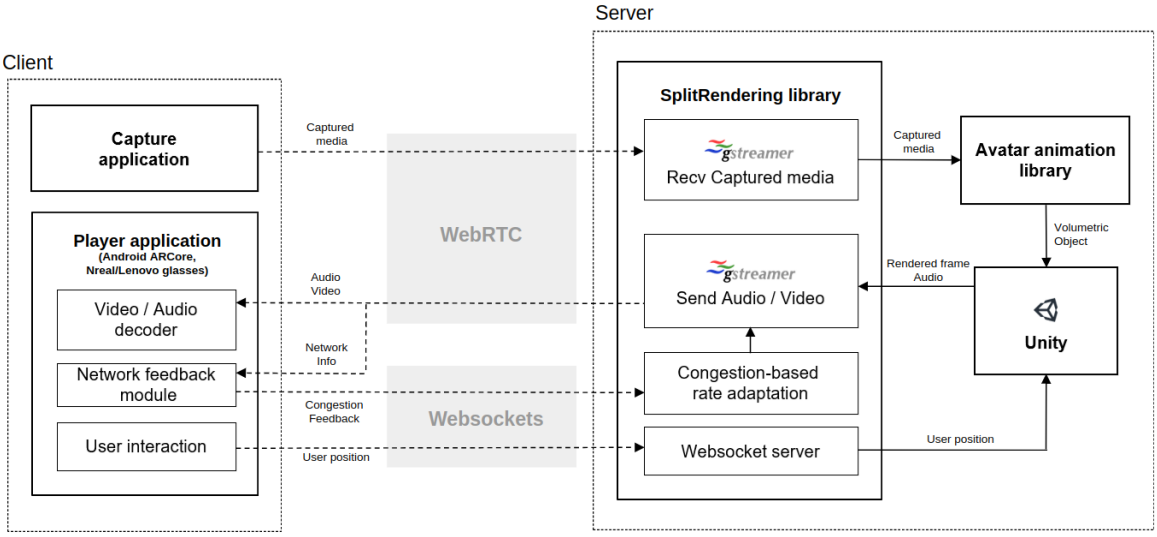

FIGURE 6: GENERAL ARCHITECTURE OF THE REAL-TIME ANIMATION AND STREAMING OF REALISTIC AVATARS PLATFORM

1.3.3 Tools

1.3.3.1 Autonomous Mobile Robot (AMR)

In the Berlin testbed an Autonomous Mobile Robot (AMR) is available to be integrated in third party use cases. The AMR available for the project is the “Husky” Robot from ClearPath Robotics. To enable the robot for autonomous driving and distributed steering, it is equipped with multiple different sensors. An API to control the robot will be offered to Open Call participants of the SPIRIT project. For safety reasons the API can only be used in agreement and with the guidance of the Autonomous Logistics Team from Deutsche Telekom.

1.3.3.2 Network-aware Resource Scheduling

To avoid monolithic architectures, telepresence solutions typically consist of multiple individual microservices or components, in the form of containers, that together represent a service function chain. In order to ensure that the deployments of such chains still meet the latency and throughput requirements of the application, resource management and orchestration platforms should not only be aware of the computational resource usage but also of the network characteristics. Vanilla Kubernetes (K8s) deployments do not take networking characteristics into account and primarily focus on CPU and RAM optimisation.

In SPIRIT, a network-aware scheduling component for Kubernetes that supports both computational and network resource efficiency, called Diktyo, can be used as an alternative for the default K8s scheduler. It is integrated in the Kubernetes deployment in the Berlin testbed.

1.3.3.3 Quality of Experience (QoE) Study and Resources

To understand the impact of different quality levels and other factors of immersive content on the Quality of Experience (QoE) of end users, SPIRIT performed a pertinent subjective QoE study and provides results, a dataset, and a tool. Specifically, dynamic point clouds, i.e., point cloud videos, in an Augmented Reality (AR) setting (presentation via Unity on the Microsoft HoloLens 2) were investigated. A subjective test to assess the impact of quality, quality

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switching, viewing distance, and content characteristics on the perception of point cloud videos in AR environments was conducted.

The output of this work includes *(i)* a preview/test software platform for subjective quality assessment in AR environments, *(ii)* a dataset of rating scores that can be used for training and validating future QoE models as well as the results (findings) of the subjective tests that produced these rating scores, and *(iii)* a machine learning based QoE model. In addition, the work also fine-tuned an existing ITU QoE model – that has been originally developed for conventional 2D videos – to predict the QoE for point clouds in AR environments. The details are described in the D4.1 “SPIRIT Platform (First Version)” report[2] in section 6.

The software, dataset, results (findings) from the subjective test, and the QoE models can be used by Open Call participants in use cases (applications) involving point cloud content in AR environments for three purposes:

- to build their own preview and subjective test software for their use cases;
- to be guided by the subjective test results when deciding about the quality level(s) of the point cloud content to be captured, transmitted, and presented in their use cases; and
- to predict how their users will perceive the point cloud content in AR environments.

1.3.3.4 Security – Trusted Execution Environment

More and more companies move workloads from on-premise systems in their own data centres to shared resources provided by public cloud providers (such as Amazon AWS, Microsoft Azure, Google Cloud and others). The advantages of this approach are – among others – cost reduction and more flexible resource allocation.

However, this move to cloud resources creates some security concerns:

- While data is nowadays normally encrypted while in transit, it must be decrypted in the cloud to allow processing.
- This leaves possibly sensitive data open to theft and government surveillance.
- Most cloud providers are headquartered outside of the European Union, therefore achieving regulatory compliance (GDPR) can be difficult or impossible to achieve for European data owners.

These considerations are especially pertinent for cloud-based telepresence frameworks and applications developed in the SPIRIT project, as these applications naturally involve the processing of personal data.

Our Confidential Computing solution addresses this conflict of goals, by offering enhanced security of data processing in the cloud while keeping the advantages of moving to shared resources.

Figure 7 represents this new approach of end-to-end security, where data in transit is encrypted and only provably trustworthy cloud applications can break up this encryption to process and store the confidential data. To exclude the cloud provider itself from the Trusted Computing Base (TCB) of the application, any solution must provide robust security guarantees that can also be verified by remote parties before delivering their potentially confidential data to the cloud.

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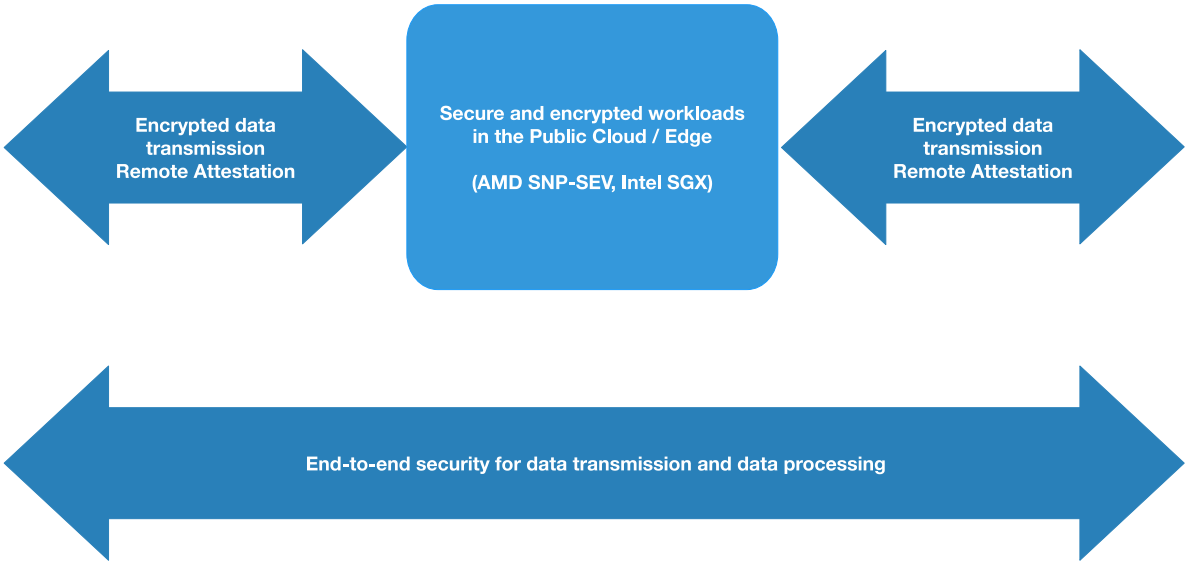

FIGURE 7: END-TO-END SECURITY

In the project we provide tools to create confidential virtual machine images and to deploy and manage their operation in our test lab in Berlin, consisting of two AMD servers, one of them with NVIDIA GPU resources. These secure hosting services are available to all SPIRIT and Open Call partners to deploy cloud-enabled SPIRIT and third-party components for demos and trials.

1.4 SPIRIT OPEN CALLS SCOPE AND SCHEME

1.4.1 Objectives

The SPIRIT project goal is to provide an open and flexible environment for both the project team and third-party application/service providers to develop and test a wide variety of collaborative telepresence applications between remote sites over the public Internet.

In order to enhance visibility and promote the uptake of the SPIRIT platform, the project team aims to conduct extensive testing across diverse use cases within various vertical sectors through the engagement of third-party entities. Financial support will be allocated for a minimum of 25 project use case applications, encompassing several vertical sectors, such as:

- Healthcare
- Retail
- Education
- Training
- Entertainment
- Manufacturing
- Tourism

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To reach the goal of facilitating robust testing and demonstration activities the project will provide Financial Support for projects carried out by Third Parties selected through the Open Calls mechanisms.

As such, the SPIRIT project organises two waves of Open Calls, OC1 and OC2, in order to maximise the SPIRIT platform's capability in supporting a wide range of telepresence applications:

- **SPIRIT-OC1** aims to facilitate third parties to validate, test, demonstrate and develop further their individual applications on the *first version of the SPIRIT platform* or to contribute transport or application components that enhance/extend that platform. The call will be launched indicatively in March 2024 and will be open for 2 months from the launching date. The selected projects will indicatively start in July 2024 and are supposed to run for 9 months maximum.
- **SPIRIT-OC2** aims to facilitate third parties to validate, test, demonstrate and develop further their individual applications on the *final release of the SPIRIT platform* or to contribute transport or application components that enhance/extend that platform. The call will be launched in November 2024 and will be open for 2 months from the launching date. Selected projects will start in February 2025 and run for 8 months maximum.

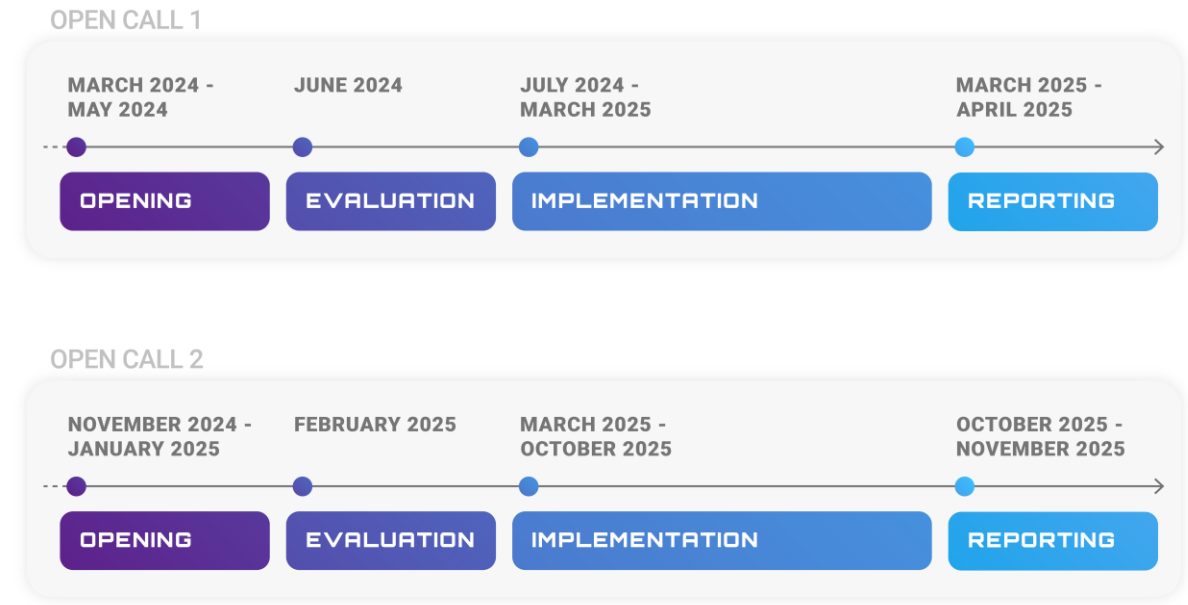

FIGURE 8: OPEN CALL 1 AND OPEN CALL 2 TIMELINE

The OC1 of the SPIRIT project invites FSTP proposals that concentrate on one or more of the subsequent activities, each contributing to the growing impact on SPIRIT:

1. **Validating and testing third-party applications on the SPIRIT platform:** Conducting experiments utilising the current state of the SPIRIT platform and tools to test established FSTP solutions in specific use cases and scenarios. The evaluation

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focuses on factors such as scale, responsiveness, reliability, and realism, ultimately resulting in improved FSTP algorithms, components, or products. Additionally, this process provides a deeper understanding of the performance and limitations of the existing SPIRIT platform.

2. **Providing new requirements for the SPIRIT platform:** Conducting experiments that incorporate, to some extent, established FSTP solutions previously validated in laboratory settings, either within the existing SPIRIT platform or utilising SPIRIT tools. This aims to facilitate experimentation in a more authentic environment, leading to new requirements and features for prioritizing the future development of the SPIRIT platform.
3. **Advancing the SPIRIT platform:** Initiating developments and experiments aimed at enriching the existing SPIRIT platform. This involves integrating and testing additional functionalities offered by the FSTP, resulting in an enhanced feature set for the SPIRIT platform or expanded support for immersive application domains.

The SPIRIT-OC2 round will specifically target FSTP proposals centered around the first and third activities outlined in the previous list, namely, the *Validating and testing third-party applications*, and *Advancing the SPIRIT platform.* These activities will make use of the *enhanced* SPIRIT platform available at the time of the OC2 round. Enhancements will be made by the SPIRIT partners, e.g., by appropriately connecting the DT and UoS testbed sites such that use cases/scenarios under heterogeneous network conditions can be investigated, and presumably by OC1 participants/projects that will provide additional platform components in the areas of transport and application enablers. For instance, Low-Latency DASH is a desirable additional transport solution.

1.4.2 Funding Scheme for Open Call 1 and Open Call 2

TABLE 2: SPIRIT OPEN CALL FUNDING SCHEME

Open Calls number	Max funding per TPP [€]	TPP Duration [months]	Targeted Number of TPPs funded in each call	Total funding [€]
SPIRIT-OC1	200.000	9	10	2.000.000
SPIRIT-OC2	100.000	8	15	1.500.000
Total			25	3.500.000

The financial support is foreseen for Third Parties that will be engaged in the development and testing of their proposed application use cases into the SPIRIT platform.

The project carried out by third parties is called the ***Third-Party Project (TPP)***.

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The foreseen number of TPPs to be financed is 25 at least. The total budget for TPPs is equal to 3.500.000 and is divided into 2 actions namely **OC1** and **OC2**.

Each selected project will be supervised by a project partner (PATRON) who is responsible for supporting the experimenters during execution and following up on the experiment results.

In particular, the following details apply to the financial support for TPP in OC1 and OC2:

OC1 has a total budget of 2.000.000€. The targeted number of projects to be selected via this Open Call will be 10 TPPs. The number of projects that will be funded varies depending on the funding requested as well as the outcome of the evaluation by external reviewers. The requested funding cannot exceed 200.000€ per project.

OC2 has a total budget of 1.500.000€. The targeted number of projects to be selected via this Open Call will be 15 TPPs. The number of projects that will be funded varies depending on the funding requested as well as the outcome of the evaluation by external reviewers. The requested funding cannot exceed 100.000€ per project.

1.4.2.1 Eligible costs:

The financial support will be disbursed in accordance with the eligible costs outlined below.

- Personnel costs
- Travel costs
- Overhead (25% of direct costs)

1.4.2.2 Payment Procedures

The payment structure for TPP consists of two instalments. The initial instalment, amounting to 75% of the Maximum Grant Amount, is slated for disbursement in Month 5 of the TPP, following the submission of the mid-term reporting (1st report). The second instalment will be processed after the final review. Details regarding report information are outlined in the Report Template.

1.4.3 Origin of the Funding

The funds allocated to the selected applicants originate from the European Project SPIRIT, which is funded under the EC Horizon Europe Framework Programme (HORIZON-CL4-2021-HUMAN-01**)** through the European Commission Grant Agreement Number 101070672. The selected projects will be associated with the consortium through a sub-grant contract. For more information please check Section 7. The Applicant's project cannot receive double funding. Synergies with other sources of funding, including other Horizon Europe projects, are allowed as long as the grants are used for complementary, not overlapping purposes.

Each Applicant must declare that it has not received funding for exactly the same purpose from other European Commission funding schemes.

1.4.4 Entities Entitled to Receive Financial Support

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All organisations eligible for participation in the Horizon Europe programme may participate in the Open Call. As the SPIRIT project was funded within the HORIZON-CL4-2021-HUMAN-01 call, the list of eligible countries is the one applied to this call.[4].

Eligible entities for application encompass both *individual entities* and *consortia*, the latter being limited to a maximum of 3 entities.

In the case of a consortium application, a designated coordinator will be appointed. The coordinator assumes the responsibility of signing the agreement and is the designated recipient of the grant, responsible for its subsequent distribution among the consortium members.

The targeted organisations are:

- SME
- Industry
- Research/scientific organisation
- Academia

1.4.4.1 SME Definition

A SME will be considered as such if it is compliant with the European Commission recommendation 2003/361/EC[5] and the SME user guide[6]. As a summary, the criteria which define an SME are:

a. Independent (not linked or owned by another enterprise), in accordance to Recommendation 2003/361/EC.
b. Headcount in Annual Work Unit (AWU) less than 250.
c. Annual turnover less or equal to €50 million OR annual balance sheet total less or equal to €43 million.

The EC offers a self-evaluation test[7] to check whether a legal entity is covered by the SME definition.

Participating SMEs must fill in and submit the document SMEs CHECK LIST SPIRIT OPEN CALL 1.

[4] https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/list-3rd-country-participation_horizon-euratom_v1.2_en.pdf

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003H0361

[6] https://ec.europa.eu/docsroom/documents/42921/attachments/1/translations/

[7] https://ec.europa.eu/growth/tools-databases/SME-Wizard/smeq.do;SME_SESSION_ID=PcMSKGInnb-hk8AX_-L55nqpgOjb7Hmr2PL187FRVwq1HAcSV3oG!1985664871?execution=e1s1

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1.4.5 Role of PATRON

In the context of the SPIRIT Open Call categories, experimenters/applicants benefit from both basic and advanced support provided by PATRON(s).

A PATRON is a consortium partner acting as a mentor organisation during the development of the TTP supporting the experimenters during execution and following up on the experiment results.

PATRONs will be assigned to the various funded projects according to the use case developed and the specific needs.

A. Basic Support:

- Ensuring the facility's operational status, addressing issues like server downtimes.
- Offering guidance through documentation on facility usage, directing experimenters to relevant tutorials.
- Providing assistance with technical queries pertinent to the facility

B. Dedicated (Advanced) Support:

- Conducting in-depth analysis of experimenter problems, comprehensively understanding their goals, and proposing alternative approaches to achieve those goals.
- Assisting in experiment setup, guiding experimenters through relevant aspects of the facility to focus on their specific challenges.
- Collaboratively resolving practical technical issues, including proposing solutions and potentially creating scripts to streamline processes.
- Implementing custom modifications as far as feasible.
- Providing technical consultancy during and after experiments, addressing unexpected results, and troubleshooting issues.
- While at least one PATRON is necessary per experiment, multiple PATRONs are feasible based on the experiment's complexity and requirements. This collaborative approach ensures tailored support for experimenters within the SPIRIT framework.

1.4.5.1 List of PATRONs

All consortium partners will act as PATRONs and support the projects according to their specific objectives. The following table briefly summarises the potential PATRONS for the components described in the section 1.3. Of course, technical experts and PATRONS are also available for other collaborative telepresence topics.

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TABLE 3: LIST OF PLATFORM COMPONENTS AND THEIR RELATED PATRONS

Platform Component	Description	Patron
TESTBEDS		
5G Testbed, Berlin	The Deutsche Telekom testbed offers an area of around 500 m² outdoor space and 1000 m² indoor space. The indoor area as well as the outdoor area is covered by a private 5G Standalone Network. Computing power is provided by an edge server that is located on premise and is connected via fibre to the 5G Network.	Deutsche Telekom T-Systems
5G Testbed, Surrey	The 5G Innovation Centre (5GIC) at University of Surrey, UK, is a fully operational network consisting of both self-contained 4G and 5G radio access network (RAN) and the core network components following 3GPP standards (up to R16). Furthermore, the testbed hosts a 3GPP compliant network operations centre (NoC) to orchestrate communication services over end-to-end 5G network slices. A containerised virtual machine (VM) based computing environment is provisioned for hosting different telepresence applications.	University of Surrey
APPLICATION PLATFORMS		
Holographic Communication	The application supports use cases of digital human-to-human interaction with a particular focus on one-to-one collaboration in real time using holographic communication technology with end devices such as mobile phones and AR glasses.	Ericsson
Real-time Animation & Streaming of Realistic Avatars	The application platform provides real-time animation and streaming of realistic avatars. This includes a variety of tools to capture media on a producer device, to animate the representation of a human as a volumetric object and to send both video and audio to a consumer user by making use of low latency mechanisms such as WebRTC.	Fraunhofer HHI
Multi-source Live Teleportation	The application platform supports applications using live teleporting people from multiple remote internet locations to a common virtual space of the audience such that the audience can have the immersive and multisensory perception that everyone is located in the common physical scene.	University of Surrey

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Platform Component	Description	Patron
TOOLS		
Autonomous Mobile Robot (AMR)	In the Berlin testbed an Autonomous Mobile Robot (AMR) is available to be integrated in third party use cases. The AMR available for the project is the "Husky" Robot from ClearPath Robotics	Deutsche Telekom T-Systems
Network-aware Resource Scheduling	In SPIRIT, a network-aware scheduling component for Kubernetes that supports both computational and network resource efficiency, called Diktyo, can be used as an alternative for the default K8s scheduler.	IMEC
Quality of Experience (QoE) Study and Resources	SPIRIT performed a subjective QoE study on point cloud videos and provides results, a dataset, and a subjective test/presentation tool. The software, dataset, results (findings) from the subjective test, and the QoE models can be used by Open Call participants in use cases (applications) involving point cloud content in AR environments.	University of Klagenfurt
Security – Trusted Execution Environment	In the project we provide tools to create confidential virtual machine images and to deploy and manage their operation in our test lab in Berlin, consisting of two AMD servers, one of them with NVIDIA GPU resources. These secure hosting services are available to all SPIRIT and open call partners to deploy cloud-enabled SPIRIT and third party components for demos and trials.	Deutsche Telekom Security

1.5 SPIRIT OPEN CALL SHOWCASE AND AWARD PLAN

Objectives:

- Provide participants of OC1 and OC2 with a platform to present their projects in an Ignite or PechaKucha presentation style, with the opportunity to showcase demos where possible.
- Recognize and award the best projects to increase visibility for SPIRIT and encourage future participation, particularly among SMEs and startups.
- Effectively showcase the innovative projects funded through its Open Calls, recognize the contributions of participants, and foster a vibrant ecosystem of collaboration and innovation within its community.

Format:

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Ignite Presentations/ PechaKucha: Participants will deliver concise Ignite-style presentations, where each presenter has a limited time (e.g., 5 minutes) to speak, with slides automatically advancing every 15-20 seconds. This format ensures that presentations are focused, engaging, and to the point.

Demo Sessions: Whenever feasible, allow participants to demonstrate their projects through live demos or pre-recorded videos. This hands-on approach offers attendees a deeper understanding of the showcased projects and their functionalities.

Audience Interaction: Allocate time for Q&A sessions after each presentation or demo, allowing attendees to ask questions, provide feedback, and engage with the presenters. Encourage active participation to foster collaboration and networking opportunities.

Judging Criteria: Establish clear criteria for evaluating the projects, considering factors such as innovation, impact, feasibility, scalability, and alignment with SPIRIT's objectives. A panel of judges comprising industry experts, academics, and SPIRIT representatives can assess the projects based on these criteria.

Award Ceremony: At the conclusion of the showcase, announce and present awards to the best projects in various categories, such as "Most Innovative," Highest Impact," "Best Demonstration," etc. Recognize the efforts and achievements of the participants, highlighting their contributions to the SPIRIT ecosystem.

Visibility and Promotion: Promote the showcase and award ceremony through various channels, including social media, newsletters, industry forums, and partner networks. Highlight the opportunity for participants to gain visibility for their projects, attract potential collaborators, investors, and customers, and position themselves for future project participation within SPIRIT or similar initiatives.

Follow-Up Opportunities: Facilitate networking and follow-up opportunities for participants, judges, and attendees to connect further, explore potential collaborations, and exchange contact information. Provide a platform or forum for ongoing discussions, knowledge sharing, and community building beyond the showcase event.

Timeline: Schedule the showcase and award ceremony to coincide with key milestones in the SPIRIT project timeline, such as the completion of OC1 and OC2, or during significant project events or conferences where stakeholders are likely to be present.

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2 SPIRIT OPEN CALL 1 (OC1) DETAILS

This section provides the details about the implementation of the SPIRIT Open Call 1

2.1 OBJECTIVES AND APPROACH

As introduced in section 1.3, the main objectives of OC1 are: (1) to provide the first release of the SPIRIT platform to third parties so that they can validate, test and demonstrate their applications; (2) to provide new requirements informing the future SPIRIT platform development; and (3) to enhance the SPIRIT platform by additional functionality and new components.

For the SPIRIT OC1, the testbeds are not yet interconnected with reliable and dedicated network links, so that only best-effort connections between the testbeds or towards external devices can be supported. The scope of any performance-oriented experiments should therefore be limited to local testbed experimentation, taking the hardware, device and platform characteristics as they are at this point into account.

A wide variety of application domains can be supported, focusing on interactive and immersive human-to-human and human-to-machine interaction scenarios.

Third party applications and components to be tested can make use of or improve any of the following functionality, including but not limited to:

- Computational and networking resource monitoring and feedback
- Efficient management and orchestration of computational resources
- Management of stand-alone or container-based applications
- Network resource adaptation
- Transport protocol optimisation
- 5G network connectivity
- Immersive media content capturing, formatting, representation, and adaptation
- Optimisation of application-level algorithms (media encoding, processing, rendering, contextualisation and control)
- Quality of experience testing and model development
- System and network security
- Confidential Computing

Experiments that provide extensions to the SPIRIT platform functionality could, for instance, aim at:

- Research on volumetric data capturing, filtering, and compression techniques including AI algorithms.
- Experiment with XR devices such as mobile phones and AR glasses and their provided SDKs.
- Manipulate streamed audio and video data to customise the user experience within XR environments.
- Test new ways to off-load CPU/GPU heavy computations using an edge cloud solution.
- Increase scalability by extending one-to-one communication applications with one-to-many or many-to-many communication capabilities.

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- Investigate novel (low-latency) transport solutions and protocols not (yet) included in the SPIRIT delivery suite.

Additional insights into on-site testbed collaboration options, platform component deployments and use case specifications are available in the D4.1 “SPIRIT Platform (First Version)” report [2].

2.1.1 Maturity Level of the Proposal

We are looking for proposals that have undergone validation in the laboratory and can move to the prototype stage in a relevant environment during the 9-month project period.

2.2 GENERAL INFORMATIN APPLYING TO OC1

Open Calls number	Max funding per project [€]	Projects Duration [months]	Targeted Number of projects funded	Total funding [€]
SPIRIT-OC1	200.000	9	10	2.000.000

All information in section

1.3 SPIRIT TECHNICAL INFORMATION

and

1.4 SPIRIT OPEN CALLS SCOPE AND SCHEME

applies to OC 1

2.2.1 OC1 Available Budget:

OC1 has a total budget of 2.000.000€.

The targeted number of projects to be selected via this open call will be 10 TPPs.

The number of projects that will be funded varies depending on the funding requested as well as the outcome of the evaluation by external reviewers. The requested funding cannot exceed 200.000 € per project.

2.2.2 OC1 TPPs Duration:

The TPP financed within OC1 are expected to have a total duration of 9 months.

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2.2.3 OC1 Full Process Timeline

Description	Date
Launch	March 2024
Deadline for Final submission The call will be open for 2 months from launching date	27 May 2024 17.00 CET
Evaluation and Announcement of the selected beneficiaries	June 2024
Contracting procedure of the Subgrant Agreements	June 2024
Tentative Start date of Third-Party Project	July 2024
Tentative End date of Third-Party Project	March 2025
Finalisation of reporting	April 2025
Final payment	Within 60 days after final report submission

FIGURE 9: OPEN CALL 1 TIMELINE OVERVIEW

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3 ELIGIBILITY CRITERIA

3.1 PROPOSALS ELIGIBILITY CRITERIA

A proposal will be considered eligible for the SPIRIT Open Call if it complies with ALL the following rules:

The organisation/ consortium is eligible for participation in the Horizon Europe programme. As the SPIRIT project was funded within the HORIZON-CL4-2021-HUMAN-01 call, the list of eligible countries is the one applied to this call.[8].

- Eligible entities for application encompass both *individual entities* and *consortia*, the latter limited to a maximum composition of 3 entities. In the case of a consortium application, a designated coordinator will be appointed. The coordinator assumes the responsibility of signing the agreement and is the designated recipient of the grant, responsible for its subsequent distribution among the consortium members.

- The organisation/ consortium is composed of:

  (i) SMEs (definition in 1.4.4.1);
  (ii) Industry;
  (iii) Research/scientific organisation;
  (iv) Academia.

- The applicant **IS NOT AFFILIATED TO ANY OF THE CONSORTIUM PARTNERS OF THE SPIRIT PROJECT**.

- The proposal complies with the type of activity qualified for financial support as indicated in section 1.4.

- For implementation reasons, only proposals that are deemed to be executable with the current state of the SPIRIT platform and tools will be accepted. The proposal is submitted in English.

- The proposal is submitted through the official Open Call Submission Tool[9] on the SPIRIT website providing all the required documents.

- The proposal follows all the required steps as specified in Section 4 Guide for Submission.

- The proposal has been submitted within the deadline set in this document. Late proposals will not be admitted.

[8] https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/list-3rd-country-participation_horizon-euratom_v1.2_en.pdf

[9] https://www.spirit-project.eu/spirit-open-call-1-submission/

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The proposal complies with the Regulation (EU) 2016/679 (General Data Protection Regulation) regarding all personal data that might be included in the proposal.

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4 GUIDE FOR SUBMISSION

4.1 SUBMISSION PROCESS

To submit a proposal, applicants are required to use the SPIRIT Open Call Submission Tool available here. Proposals submitted through alternative channels will be automatically rejected.

To complete the submission, applicants must fill out the online form and attach the necessary documents listed below:

- Proposal template (ANNEX 1)
- Declaration of Honour (ANNEX 3)
- SMEs checklist (ANNEX 4). Required in case there are 1 or more SMEs involved in the proposal

Ensure that all mandatory fields are completed to validate the application submission. An email acknowledging receipt will be sent to all submitted proposals.

4.1.1 Proposal Submission Guidelines

The entire proposal submission process is managed through the online platform. By the specified deadline, the following steps are required:

- Complete the application form, ensuring all mandatory fields are filled.
- Attach the following documents:
  - Proposal template (ANNEX 1)
  - Declaration of Honour (ANNEX 3)
  - SMEs checklist (ANNEX 4, if applicable)

Note: To make a final submission, select 'Final Submission' under the 'Stage' tab. Proposals submitted under the 'Feasibility Advisory' option (refer to section 4.1.1.1) will not be considered final and will not undergo evaluation.

Multiple submissions of the same proposal are allowed, but only the latest submission will be considered during the evaluation phase.

4.1.1.1 Advisory service on project feasibility

To enable the development and implementation of the proposed projects, it will be essential to consider their feasibility, i.e. to assess whether the proposed experiments are technologically feasible within the current state of the SPIRIT platform and tools.

To assist applicants, the SPIRIT consortium offers an optional advisory service to evaluate project feasibility. This step is highly recommended and involves submitting a condensed version of the proposal template for feasibility verification.

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Open call applicants are encouraged to initiate communication with the SPIRIT consortium through the submission page. To receive feedback on feasibility, applicants must select the 'Feasibility Advisory' option under the 'Stage' tab and submit a description of the planned experiment, covering sections A, B, C, and H of the proposal template. The feasibility advisory service will be active up to two weeks before the OPEN CALL closes. The exact date will be announced on the website.

The feasibility advisory will focus solely on assessing the feasibility of the proposed experiment based on the completed sections A, B, C, and H. The SPIRIT consortium will not review draft proposals or suggest any changes.

Applicants should be aware that undergoing a feasibility advisory does not guarantee the selection of the proposal and does not imply any commitment to move forward with the proposal. It is also important to note that submitting a partial proposal for the 'Feasibility Advisory' is an optional preliminary step which is not considered as a final submission.

4.2 APPLICATION FORM

Required documentation and application submission templates are included in this document as annexes and downloadable from the SPIRIT website.

The use of the SPIRIT proposal template is mandatory.

4.3 LANGUAGE

English is the official language for the SPIRIT's project, and this applies also to the SPIRIT Open Calls. Submissions done in any language other than English will not be eligible therefore rejected.

4.4 DATA PROTECTION

SPIRIT collects the minimum personal data needed to deliver the evaluation procedures or the implementation of the cascade funding scheme. Digital4Planet (D4P) will manage the data submitted through the application form for these purposes. D4P ensure that data is managed in compliance with the General Data Protection Regulation (EU) 2016/679 (GDPR). Each applicant will accept the terms to ensure coverage.

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5 EVALUATION AND SELECTION

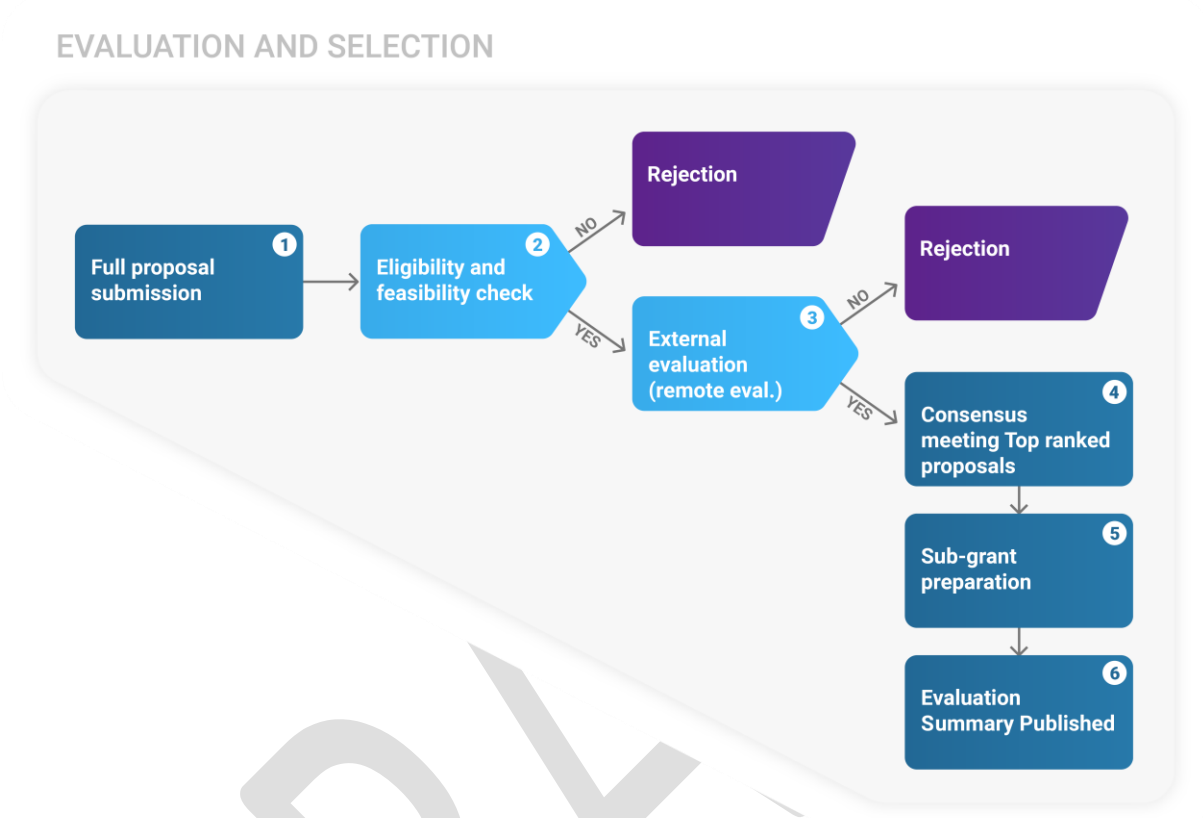

FIGURE 10: EVALUATION AND SELECTION PROCESS

5.1 ELIGIBILITY CHECK

All submitted final applications will be reviewed for eligibility by Digital for Planet with support of other partners when necessary. This check will verify the eligibility of the submitted proposals by the applicants according to the eligibility criteria described in Section 3.

The technical partners will assess whether the proposed experiment is technologically feasible within the current state of the SPIRIT platform and tools, based on sections A,B,C and H of the proposal.

Proposals deemed ineligible for administrative reasons or technically not feasible within the SPIRIT platform will be discarded, and applicants will be notified by email.

5.2 EXTERNAL EVALUATION

The proposals deemed eligible will be reviewed by external experts.

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Evaluation and ranking will be carried out by an external jury of experts, which cannot be part of the consortium and cannot evaluate proposals where a conflict of interest can be identified.

Non-Disclosure Agreements (NDAs) and Declarations of Absence of Conflict of Interest will be signed by each expert to ensure confidentiality and impartiality.

For each received proposal, at least two assigned experts will independently conduct reviews. Subsequently, consensus meetings involving all reviewing experts will be held to agree on a common opinion and rating for each proposal.

An applicant or consortium can only be selected for funding for one proposal, even if the applicant submitted multiple proposals ranked high enough to be selected for funding. In such case, the applicant will be given the option to select which proposal should be retained for funding.

5.2.1 Evaluation Criteria

Proposals will be evaluated by external experts according to the following criteria:

1. **Clarity and methodology:** Soundness of the approach and credibility of the proposed methodology.
   - Evaluation of how well the proposal is articulated.
   - Assessment of the clarity in problem formulation.
   - Scrutiny of the soundness of the plan and methodology.

2. **Ambition:** Advancement regarding the state-of-the-art and expected output.
   - Examination of the applicant's awareness of the state-of-the-art in the specific domain.
   - Evaluation of the description on how the proposal aims to advance the current state-of-the-art.

3. **Impact:** Technology and domain fit to SPIRIT scope and objectives.
   - Review of the proposal's alignment with SPIRIT's scope and objectives.
   - Assessment of how the proposal contributes to the desired impact within SPIRIT.

4. **Replicability** of the proposed solution.
   - Evaluation of the ease with which the proposed solution can be replicated.

5. **Team capacity to perform**: knowledge, technological and business expertise; research domain & track-record.
   - Evaluation of the team's skills, expertise, and capacity to execute the experiment.
   - Scrutiny of the team's research domain and track record.

6. Contribution to standardisation of the proposed solution.
   - Assessment of the potential for the proposed solution to contribute to standardisation.

7. **Value for money:** justification and effectiveness of the requested resources.
   - Review of the justification and soundness of the requested resources.
   - Assessment of whether the proposed resources are sufficient for the planned work.

8. **SME participation** is encouraged.
   - Recognition and encouragement of SME participation.

9. **Gender dimension awareness** requested to the applicants.

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- Examination of the inclusion of a gender dimension in the proposal.
- Evaluation of the gender balance within the dedicated project team.

10. **Maturity of the proposing organisation and trajectory of the proposed development**
    - Evaluation of the proposing organisation's maturity and trajectory in the specific field of their proposal.

5.2.2 Scores

External experts will evaluate the proposals considering the above-mentioned criteria. Each criterion will have a score from 0 to 5. Decimal scores may be given. For each criterion under examination, score values will indicate the following assessments:

- **0 Fail**. The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information.
- **1 Very poor**. The criterion is addressed in an unsatisfactory manner.
- **2 Poor.** There are serious inherent weaknesses.
- **3 Fair**. While the proposal broadly addresses the criterion, there are significant weaknesses that would need correcting.
- **4 Good**. The proposal addresses the criterion well, although certain improvements are possible.
- **5 Excellent**. The proposal successfully addresses all relevant aspects of the criterion in question. Any shortcomings are minor.

A minimum score for each criterion and an overall score of 33 for all criteria will be needed as a minimum threshold as detailed in the table below. Only proposals reaching the minimum threshold in all the criteria will be admitted to the next evaluation step and considered for funding.

The information on the evaluation will be compiled into an Evaluation Summary Report (ESR) which will be sent to applicants after being approved by SPIRIT Consortium.

Proposals not reaching the minimum thresholds either in individual criteria or in the overall score will not be considered for funding. The proposal template requires to provide an implementation plan including deliverables, and a cost estimate justifying the costs and resources. In the evaluation phase, the resource adequacy to fulfil the planned work will be assessed and the justification of the budgeted items. Before the award of the grant, it will be checked whether the third party is a legal entity with a stable financial history and has not been declared insolvent.

TABLE 4: EVALUATION CRITERIA AND SCORES

Criterion	Short description	Weight	Maximum score	Minimum threshold
1	Clarity & methodology	2	10	5

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Criterion	Short description	Weight	Maximum score	Minimum threshold
2	Ambition	2	10	5
3	Impact	2	10	5
4	Replicability	2	10	5
5	Team capacity	2	10	5
6	Contribution to standardisation	1	5	2
7	Value for money	1	5	2
8	SME participation	1	5	n/a
9	Gender dimension awareness	1	5	2
10	Maturity of the proposing organisation	1	5	2
Total score			**75**	**33**

The evaluation of the proposals and approval by the Open Call Steering Committee is scheduled to be finalised within one month from the closure of the Call.

OC1 has a total budget of 2.000.000 €.

The number of projects that will be funded varies depending on the funding requested as well as the outcome of the evaluation by external reviewers. The requested funding cannot exceed 200.000 € per project.

Within the maximum limit of funds available for OC1 as many projects as possible will be shortlisted following the ranking drawn up based on the evaluation made by the experts.

The shortlisted TTPs will be invited to sign a contract (sub-grant agreement) keeping the rest in a reserve list.

5.3 SELECTED PROJECTS ANNOUNCEMENT

Following the external evaluation, the applicants will be informed about their result to the main applicant's e-mail address associated with the application.

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SPIRIT will announce the winners on the project webpage and social media accounts. A reserved list will be kept as substitutes in case any awarded project withdraws or does not complete the Sub-grant signatures.

5.4 EVALUATION COMPLAINTS

Notification to the dedicated email address opencalls@spiritproject.eu must be submitted within 3 days (72 hours) from the receipt of the rejection letter underlying the reason for the complaint and why a review of the evaluation is necessary.

The Open Call Committee (composed by 1 representative each partner) will examine the request for redress. The committee's role is to ensure a coherent interpretation of such requests, and equal treatment of applicants.

The committee will review the complaint and will recommend an appropriate course of action. If there is clear evidence of a shortcoming that could affect the eventual funding decision, it is possible that all or part of the proposal will be re-evaluated.

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6 PROJECT EXECUTION AND REPORTING

6.1 SUBMISSION REPORTS

There are 2 phases of reporting:

Phase 1: mid-term report at month 5 (M5) of the project which should describe the progress of the work and will be essential for the payment of the first instalment of funding. The draft template is provided in this document as Annex 2: Report Template.

Phase 2: final report to be submitted within 30 days after project completion involving the preparation of:

- Final report at the end of the experiment using the template that will be provided at the contract signing stage.
- Final Financial Report using the template that will be provided at the contract signing stage.
- A Poster (A1-format) describing the objective and results as well as the impact of the experiment on the applicants' business. This poster will be also used by the SPIRIT consortium at public events and at the occasion of the review meetings.
- A flyer (2 A4-pages) describing the objective and results of the experiment as well as the impact of the experiment on the applicants' business. This flyer can be used by the SPIRIT consortium for dissemination activities at public events.
- A presentation (and demo) explaining and illustrating the objective and results of the project and the impact of the experiment on the applicants' business.
- The production of a short video (2-3 minutes long) about the project is strongly recommended. This video will be used for dissemination activities by the SPIRIT consortium at public events.

All funded TTPs will present their final results to the consortium during a dedicated event.

The event will be organised possibly in person to co-occur with a relevant event of the SPIRIT scientific communities in order to raise the resonance of the results obtained during OC1.

Details of this event will be communicated with due notice by the SPIRIT consortium.

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7 LEGAL AND FINANCIALS

The winning applicants will start the contracting procedure, including validation of the eligibility criteria, to be finalised no later than 30 days from the formal notification of the final evaluation result.

7.1 CONTRACTING PROCEDURE AND REQUIREMENTS

7.1.1 Validation of Documentary Evidence

During the evaluation phase, following the project selection, the SPIRIT project coordinator will inform the EU of the results and start the Third-Party Project contract preparation in collaboration with the selected applicants. The contract preparation will be initiated for both administrative and financial checking.

The objective of the contracting procedure is to fulfil the legal requirements between the European Commission, the consortium and every beneficiary of the selected TPP. This includes:

- **Legal existence of applicant**: Company Register, Official Gazette or other official document per country showing the name of the organisation, the legal address, the official founding date, ownership and a copy of a document proving VAT registration
- **Financial Stability**: The legal entity has a stable financial history and has not been declared insolvent.
- **SME status**: if applicable including the headcount, balance, profit & loss accounts of the latest closed financial year and the relation, upstream and downstream, with any linked or partner company.

The provided funding remains the property of the European Commission until the payment of the balance, whose management rights have been transferred from the European Commission to the SPIRIT Project Coordinator.

7.1.2 Sub-grant Agreement

Once an applicant is selected to perform the proposed Third-Party Project, it will become a third party receiving financial support and, to this end, will need to sign a Sub-grant Agreement, namely, *Agreement for the Use of the SPIRIT Platform for Experimentation.*

The *Agreement for the Use of the SPIRIT Platform for Experimentation* template can be found in this document as annex 5. The available template is a draft and is subject to changes.

7.1.3 Governing Law and Jurisdiction

The Legal Terms and Conditions and any dispute or claim (including non-contractual disputes or claims) arising out of or in connection with it or its subject matter or formation shall be governed by and construed in accordance with the law of Belgium.

Each party irrevocably agrees that the Belgian court shall have exclusive jurisdiction to settle any dispute or claim (including non-contractual disputes or claims) arising out of or in connection with the Legal Terms and Conditions or its subject matter or formation.

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7.1.4 Intellectual Property Rights

In order to support open and repeatable scientific experiments, the EC is advocating that experimenters publish their experiment data. This is not mandatory: the EC recognises that there are legitimate reasons why experimenters may want to keep their data confidential. To support this SPIRIT Third-Party Projects are encouraged (but not mandated) to create a data package containing their results with all data that supports them, and upload it to the SPIRIT approved repository so that it may be found and reused by other interested parties.

The EC's guiding principle regarding open research data is "AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY". This means the default situation is that all experiment data should be open but if there are genuine reasons why experiment data is not to be opened, third parties can opt out and their data can be kept confidential. SPIRIT Third-Party Projects can opt out of opening data at any time up to the point of publication after the project has completed, even if they have previously declared that they want to open data. Projects need to state the reasons why they will not open data, and these can include:

- Commercial confidentiality & IPR
- Personal data
- Conflict with the experiment's main objective

7.1.5 Confidentiality and GDPR Data Protection

At the application stage

A complete list of applicants will be prepared containing their essential information for statistical purposes, which will also be shared with EC for transparency. The applicants' list will not be public but will serve as statistics in project communication materials.

At the evaluation stage

To execute the evaluation the full proposal is shared with the experts that sign an NDA and confidentiality to this scope.

At the implementation stage

During the implementation of the action and for 5 years after the end of the SPIRIT project, the parties must keep confidential any data, documents, or other material (in any form) that is identified as confidential at Third-Party Project subcontract signing time ('confidential information').

Additional rules for data protection & confidentiality as part of the SPIRIT consortium agreement may apply. It should be noticed that all tools/software/applications implemented within the SPIRIT project as open source will be covered by the relevant Open-Source License. During the Third-Party Project signature, the Third-Party Project consortium beneficiaries may describe in a specific Annex any background knowledge or asset that they are willing to retain as background knowledge.

7.1.6 Visibility to the EU Funding

The TPP applicant must promote the participation in the SPIRIT project and its results, by providing targeted information to multiple audiences (including the media and the public) in a strategic and effective manner and to highlight the financial support of the EC.

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Any communication related to the action (including in electronic form, via social media, etc.), any publicity, including at a conference or seminar or any type of information or promotional material (brochure, leaflet, poster, presentation etc.), and any infrastructure, equipment and major results funded by the grant must:

- display the EU emblem;
- display the SPIRIT logo and
- include the following text: “Project [*name of the project*] has been indirectly funded, via the cascading funding mechanism, from the European Union’s Horizon Europe Research & Innovation programme under project SPIRIT (Grant Agreement No 101070672)”.

7.1.7 Financial Audits and Controls

The European Commission (EC) will monitor that SPIRIT beneficiaries (including the newly added beneficiary) comply with all the Horizon Europe Grant Agreement obligations and responsibilities as indicated in the European Commission, “Model Grant Agreement,”

Moreover, the EC may at any time during the implementation of the SPIRIT project and up to 5 (five) years after the end of the SPIRIT project, arrange for financial audits to be carried out, by external auditors, or by the EC services themselves including the European Anti-Fraud office (OLAF). Such audits may cover financial and other aspects (such as accounting and management principles) relating to the proper execution of the Grant Agreement.

Each Third-Party Project consortium beneficiary shall make available directly to the EC all detailed information and data that may be requested by the EC or any representative authorised by it, with a view to verifying that the Grant Agreement is properly managed and performed in accordance with its provisions and that costs have been charged in compliance with it.

Each Third-Party Project consortium beneficiary shall keep all project deliverables and all documents relating to the activity for up to five years from the end of the project. These shall be made available to the EC when requested during any audit under the Grant Agreement.

On the basis of the conclusions of the audit, the EC shall take all appropriate measures which it considers necessary, including the issuing of recovery orders regarding all or part of the payments made by it and the application of any applicable sanction.

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8 HELP DESK AND SUPPORT

All the information on the SPIRIT project and its open call is available on:

- The project website dedicated page[10], where all the official documents are published.
- Frequently Asked Questions [FAQ] section on the project website dedicated page: a list of FAQs will be published and updated during the application period. Applicants are required to read carefully the FAQs before submitting their application.
- Dedicated Webinars for the potential applicants, where technical and administrative aspects on how to participate will be presented.
- Promotional Videos about the Open Calls on the website
- SPIRIT social media channels: X, LinkedIn, and YouTube
- Dedicated Contact Email: applicants can ask questions via email at opencalls@spirit-project.eu. Please consider that your question can be published as a FAQ unless you mark it as confidential.

[10] https://www.spirit-project.eu/open-call-1/

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9 REFERENCES

[1] SPIRIT Consortium, “Use Case Requirements, System Architecture and Interface Definition (First Version),” Project "Scalable Platform for Innovations on Real-time Immersive Telepresence", EC grant agreement 101070672, 2023.

[2] SPIRIT Consortium, “SPIRIT Platform (First Version),” Project "Scalable Platform for Innovations on Real-time Immersive Telepresence", EC grant agreement 101070672, 2023.

[3] SPIRIT Consortium, “Innovation Platform Enablers (First Version),” Project "Scalable Platform for Innovations on Real-time Immersive Telepresence", EC grant agreement 101070672, 2023.

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10 ANNEXES

ANNEX 1: PROPOSAL TEMPLATE

1ST OPEN CALL (OC1)

PROPOSAL TEMPLATE

Full Title of your proposal
Acronym of your proposal

Call[1]	SPIRIT-OC1
Date of submission of your proposal:	dd/mm/2024
Proposal stage[2]:	"Draft for Feasibility check" or "Final"
Organisation name[3]:	Organisation name
Name of the applicant[4]:	First name; Last name
Applicant's telephone number:	Number
Applicant's email address:	Email address

[1] This call: SPIRIT-OC1

[2] Indicate the stage of proposal: "*Draft for feasibility check"* or "*Final"*. In case of "*Draft for feasibility check"* **Section A, B, C and H** need to be filled in. For "*Final"* proposal **ALL Sections** marked as mandatory must be filled in.

[3] In case of Consortium indicate all the organisations involved in the Consortium. Maximum 3 entities are allowed. Please numerate each entity and indicate the entity acting as coordinator as number 1) as in following example: *1) Organisation name (COORDINATOR); 2) Organisation name; 3) Organisation name;*

[4] In case of Consortium indicate only the COORDINATOR representative.

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[This is the email address to which the Acknowledgment of receipt will be sent]	
Vertical sector[5]	

Note: Grey highlighted areas must be filled in for proposal eligibility.

[5] Please indicate the vertical sector of relevance for your proposal selecting among: *Healthcare, Retail, Education, Training, Entertainment, Manufacturing, Tourism, Other (SPECIFY).*

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SECTION A PROJECT SUMMARY

(Maximum 300 words – summary of the proposed work)

Remark: The information in this section may be used in public documents and reports by the SPIRIT consortium.

This section needs to be completed in the draft proposal and will be used for the feasibility check (cf. Section E)

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SECTION B DETAILED DESCRIPTION AND EXPECTED RESULTS

(Minimum 4 pages, and maximum 6 pages)

*This section describes the details of the planned Experiment. The applicants should describe **what** they plan to obtain, **how**, and **why** this is relevant. This section should also include all information with respect to the state-of-the-art and the expected industrial/scientific impact. This section should also include appropriate consideration of the gender dimension in research and innovation content.*

This section needs to be completed in the draft proposal and will be used for the feasibility check (cf. Section E)

B.1 CONCEPT AND OBJECTIVES

Describe the specific objectives of the proposed Experiment, which should be clear, measurable, realistic and achievable within the duration of the Experiment (not through subsequent development). Show how they relate to the SPIRIT OC1 and how and why SPIRIT is needed for realising them.

Describe and explain the overall concept that forms the basis for your project. Describe the main ideas, models or assumptions involved.

B.2 IMPACT

Describe how this Experiment fits in with your activities, and how this Experiment may strengthen the competitiveness of your business, the growth of your organisation and/or contribute to the broader scientific community.

Show that the proposed Experiment has sufficient sustainable benefits for the SPIRIT project, meaning that there should be an added value for the SPIRIT project, after the applicant has finished the Experiment.

B.3 DESCRIPTION OF STATE-OF-THE-ART

Describe in detail how the proposed solution compares with existing solutions in the field covered by the Experiment. Are there similar Experiments, products, services, etc. on the market?

B.3.1 Advancing Beyond the State of the Art

Provide a detailed and convincing argument for how the proposed solution surpasses the current state of the art current state-of-the-art in the field. Some key elements the applicant should consider including: Innovation and Uniqueness, Comparative Analysis, Incremental Contribution, Addressing limitations, Future implications.

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B.4 METHODOLOGY AND ASSOCIATED WORK PLAN

Provide a work plan. Provide clear goals and verifiable results, and also a clear timing.

The work plan involves at least the following phases:

1. *Design of Experiment*
2. *Executing the Experiment*
3. *Analysis & feedback*
    - *Analysis of the results of the Experiment*
    - *Feedback on user experience*
    - *Recommendations for improvements and/or future extensions of the SPIRIT infrastructures*
4. *Showcase: Set up of a showcase (demonstration) to be used for the evaluation of the Experiment at the review meeting with the European Commission, and for further promotion of SPIRIT*
5. *Dissemination: Regular dissemination actions (journal publications, conferences, workshops, exhibitions, events, advertising of results at SPIRIT website, potential for standardisation, etc.)*
6. *Final report and deliverables*

NOTE: there is NO need to define work packages. All results need to be reported in the final report at the end of the Experiment.

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SECTION C USAGE OF SPIRIT RESEARCH INFRASTRUCTURES

(Target length 1 page)

This section needs to be completed in the draft proposal and will be used for the feasibility check (cf. Section E).

The following list of questions will give the applicants an idea of what information the SPIRIT consortium is expected to get from this section:

- *What specific infrastructure are you planning to use or contribute to?*
- *What infrastructure components are expected to be used?*
- *What interfaces are expected to be used?*
- *How many field days at the infrastructures are expected?*
- *What would be the technical requirements from applicants (e.g. uplink/downlink bandwidth capacity, type of access network (WiFi, 5G...), deployment space / conditions, Local or Edge Computing resources (O.S, CPU, GPU, RAM...), media formats / protocols? Please indicate any other technical / infrastructure related requirements or constraints related to the offered infrastructures.*

Please provide a short motivation on why specific platform features and infrastructures will be required for the proposed Experiment. (maximum ½ page)

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SECTION D DATA MANAGEMENT PLAN

This section contains the Data Management Plan that the experimenters will put in place to preserve data during the execution of the experiment.

To guide the experimenters in building the Data Management Plan here is a questionnaire that needs to be answered as part of the experiment proposal. Question marked with M are mandatory the ones marked with O are optional.

Sect.	DMP Category and Question	Initial DMP	Guidelines
1 Data Summary			
	Will you re-use any existing data and what will you re-use it for?	M	State the reasons if re-use of any existing data has been considered but discarded. If any external data is anticipated before the experiment starts, state it here. If any external data has been used during an experiment, it must be stated, along with any license terms or stipulations.
	What types and formats of data will the project generate or re-use?	M	Initially this can be an estimate. In the final DMP this should be a statement of the formats, so it can go into the metadata
	What is the purpose of the data generation or re-use and its relation to the objectives of the project?	M	This should be the abstract of experiment from proposal including objectives of collecting the experiment data
	What is the expected size of the data that you intend to generate or re-use?	O	Initially this can be an estimate. In the final DMP this should be the actual size of the data.
	What is the origin/provenance of the data, either generated or re-used?	M	This is the expected source of the data before the experiment runs, and the actual source of data once the experiment is complete.
	To whom might your data be useful ('data utility'), outside your project?	O	If there are any expected users of the data, state them.
2. FAIR data			
2.1 Making data findable, including provisions for metadata			
	Will data be identified by a persistent identifier?	M	Initially, this should be a statement committing that the experiment data will be discoverable. When the experiment is complete, the experiment data's

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			Digital Object Identifier (DOI) and metadata should be cited
	Will rich metadata be provided to allow discovery?	M	Include details
	What metadata will be created? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.	M	Initially, this should be citations of the metadata schemas that are planned to be used, with indications of what will go into the fields (e.g. the title of the experiment etc). After the experiment, this should be a citation to the actual metadata used for the data.
	What disciplinary or general standards will be followed?	M	Include details
	Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential re-use?	M	This should always be YES - there will be or are keywords for search terms. The keywords should be stated here.
	Will metadata be offered in such a way that it can be harvested and indexed?	M	This should always be YES
2.2. Making data accessible			
	Repository: Will the data be deposited in a trusted repository?	M	include or cite the repository
	Repository: Have you explored appropriate arrangements with the identified repository where your data will be deposited?	M	Cite the documentation
	Repository: Does the repository ensure that the data is assigned an identifier?	M	Include details
	Repository: Will the repository resolve the identifier to a digital object?	M	Include details
	Data: Will all data be made openly available?	M	If certain datasets cannot be shared (or need to be shared under restricted access conditions), explain why, clearly separating legal and contractual reasons from intentional restrictions.
	Data: If an embargo is applied to give time to publish or seek protection of the intellectual property (e.g. patents), specify why and how long this will apply, bearing in mind that research	M	Include details

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	data should be made available as soon as possible.		
	Data: Will the data be accessible through a free and standardized access protocol?	M	Include details
	Data: If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?	N/A	The default position of SPIRIT is that data should be open, not restricted, so this should not apply
	Data: How will the identity of the person accessing the data be ascertained?	N/A	This is the responsibility of the repository.
	Data: Is there a need for a data access committee (e.g. to evaluate/approve access requests to personal/sensitive data)?	N/A	SPIRIT will not have a Data access committee
	Metadata: Will metadata be made openly available and licenced under a public domain dedication CC0? If not, please clarify why. Will metadata contain information to enable the user to access the data?	M	Include details
	Metadata: How long will the data remain available and findable?	M	Include details
	Metadata: Will metadata be guaranteed to remain available after data is no longer available?	M	Include details
	Metadata: Will documentation or reference about any software be needed to access or read the data be included?	M	Include details
	Metadata: Will it be possible to include the relevant software (e.g. in open source code)?	M	Include details
2.3 Making data interoperable			

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	What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines?	M	Initially, include a statement of the formats intended for the data, together with citations of their definitions if applicable
	Will you follow community-endorsed interoperability best practices? Which ones?	M	Include details
	In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?	M	Description of the mappings, if applicable.
	Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them?	M	Include details
	Will your data include qualified references to other data (e.g. other data from your project, or datasets from previous research)?	M	Include details
2.4. Increase data re-use			
	How will you provide documentation needed to validate data analysis and facilitate data re-use (e.g. readme files with information on methodology, codebooks, data cleaning, analyses, variable definitions, units of measurement, etc.)?	M	Initially, this should be a statement of the intended license, which at least must permit open access. Once the experiment is complete, the data must be licensed under terms that permit open access, and the license must be named here
	Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses?	M	Include details
	Will the data produced in the project be useable by third parties, in particular after the end of the project?	M	The data should be reusable by third parties.
	Will the provenance of the data be thoroughly documented using the appropriate standards?	M	Include details

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	Describe all relevant data quality assurance processes.	M	Include details
3. Other research output			
	Consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.).	M	Include details
	Consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.	M	Include details
4. Allocation of resources			
	What will the costs be for making data or other research outputs FAIR in your project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.) ?	M	The experimenter can claim additional costs for opening data over and above their experiment budget, up to a specified limit. In order to claim the costs, the experimenter must provide an indication in the initial DMP and the actual costs in the Final DMP.
	How will these be covered?	M	Note that costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions)
	Who will be responsible for data management in your project?	M	The person responsible for the data management should be named in both the initial and final DMP.
	How will long term preservation be ensured?	O	This is the responsibility of the repository. The repository should provide a long-term data retention policy that describes how long data is kept for, as well as any notification procedures for disposal.

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	Discuss the necessary resources to accomplish this (costs and potential value, who decides and how, what data will be kept and for how long)?	O	Addressed in the above question.
5. Data security			
	What provisions are or will be in place for data security (including data recovery as well as secure storage/archiving and transfer of sensitive data)?	N/A	This is the responsibility of the repository. The experimenter may base their choice of repository on its reputation and any guarantees a repository provides regarding security and integrity.
	Will the data be safely stored in trusted repositories for long term preservation and curation?	N/A	This is the responsibility of the repository.
	A qualified reference is a cross-reference that explains its intent.	O	1 For example, X is regulator of Y is a much more qualified reference than X is associated with Y, or X see also Y. The goal therefore is to create as many meaningful links as possible between (meta)data resources to enrich the contextual knowledge about the data.
6. Ethics			
	Are there, or could there be, any ethics or legal issues that can have an impact on data sharing?	M	Legal, ethical and data protection issues must to be described in the initial DMP that forms part of the experimenter's proposal before the experiment runs, together with procedures for correct compliance with the applicable laws including the implications of storing the data for the long term in an open repository.
	Will informed consent for data sharing and long term preservation be included in questionnaires dealing with personal data?	M	The experimenter must specify methods for acquiring informed consent in their initial DMP.
7. Other issues			
	Do you, or will you, make use of other national/ funder/ sectorial/ departmental procedures for data management? If yes, which ones?	M	list and briefly describe them?

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SECTION E FEASIBILITY CHECK

(maximum 1 page)

This section is not mandatory and applicable only to the final proposal. In case you have benefited from the support offered "feasibility advisory" include in this section the feedback received.

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SECTION F BACKGROUND AND QUALIFICATIONS

(maximum 2 pages)

This section describes the organisation/consortium and the team that will take part in the Experiment. This section must include the activities and technical expertise of the organisation/consortium, the applicant and if applicable other team members' qualifications, technical expertise, and other information to enable reviewers to judge the ability to carry out the Experiment.

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SECTION G EXPECTED FEEDBACK TO THE SPIRIT CONSORTIUM

(maximum 1 page)

This section contains valuable information for the SPIRIT consortium and should indicate the feedback the SPIRIT consortium can expect from the use of platforms and/or testbeds after carrying out the Experiment. This information is essential in view of further improving the usability of the SPIRIT facilities.

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SECTION H REQUESTED FUNDING

(maximum 1 page)

This section provides an overview of the budgeted costs and the requested funding. A split is made in personnel costs for development of software and equipment, other direct costs (travel) and indirect costs (i.e. overhead, 25% of the direct costs).

Please show your figures in euros (not thousands of euros).

	Total Person Months	**Cost (€)**
(1) Direct personnel costs		
(2) Other direct costs, of which:		
Travel		
(3) Indirect costs (25% of direct costs)		
(4) Total costs (Sum of 1, 2 and 3)		

In row (1), insert your direct personnel costs for the work involved, including the name, seniority and the role in the experiment.

In row (2), insert any travel costs. Please allocate sufficient budget for participation in one training meeting at the beginning of the experiment, the final review meeting, and visit(s) to SPIRIT partners.

In row (3), calculate the indirect costs (for personnel and other direct costs)

In row (4), calculate the sum of your personnel, other direct costs and indirect costs.

The maximum funding which is allowed in this call is set at 200 000 € per project.

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SECTION I USE OF PROPOSAL INFORMATION

In this section the proposing party is asked to include some statements related to sharing information in their proposal within the SPIRIT consortium.

The SPIRIT project would like to have the opportunity to collect more detailed information and further use this information, even if the proposal is not selected for funding. In any case, the SPIRIT consortium will treat all information of a proposal confidentially.

Two types of information usage are envisaged:

- *Information which is part of the Sections A, C, E and F will be used within the SPIRIT project as input for tasks related to the infrastructure and software platform optimisation, sustainability studies, etc. The same information can also be used in an anonymous way to create statistics and reports about this first open call.*
- *Other information belonging to this proposal might also be accessed by the SPIRIT consortium, if allowed by the corresponding applicant. Any use of such information will be discussed and agreed upon with the applicants. Applicants have the freedom to select if they wish to support this kind of information usage.*

I allow that the material provided in Sections A, C, E and F of this proposal may be accessed by the SPIRIT consortium, even if the proposal is not selected for funding. In any case, the SPIRIT consortium will treat all this information confidentially. It will be used within the SPIRIT project as input for tasks related to the infrastructure and software platform optimisation, sustainability studies, etc. The same information can also be used in an anonymous way to create statistics and reports about this first open call.	Yes ☐
Furthermore, I allow that the other parts of this proposal may be accessed by the SPIRIT consortium, also if the proposal is not selected for funding. In any case, the SPIRIT consortium will treat all information of this proposal confidentially. Any use of this information will be discussed and agreed upon with the applicants.	Yes ☐

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SECTION J ETHICAL AND PRIVACY FRAMEWORK

J.1 ETHICAL FRAMEWORK

Please reply to the following questions considering ethical issues that the proposal may pose and provide further information on how the project plans to comply with ethical principles and relevant legislations.

- Does this activity involve the use of human embryos and/or cells?
- Does this activity involve human participants?
- Does this activity involve processing of personal data?
- Does this activity involve animals?
- Does this activity involve the use of substances or processes that may cause harm to the environment, humans, animals or plants (during the implementation of the activity or further to the use of the results, as a possible impact)?
- Does this activity deal with endangered fauna and/or flora / protected areas?
- Does this activity involve the development, deployment and/or use of Artificial Intelligence? (if yes, detail whether that could raise ethical concerns related to human rights and values and detail how this will be addressed).
- Are there any other ethics issues that should be taken into consideration?

J.2 PRIVACY FRAMEWORK

Please complete the questions below with as much detail as possible which will be assessed by the SPIRIT *infrastructures during the feasibility check.*

1. Will the project involve the collection of new information about individuals?

2. Will the project compel individuals to provide information about themselves?

3. Will information about individuals be disclosed to organisations or people who have not previously had routine access to the information?

4. Are you using information about individuals for a purpose it is not currently used for, or in a way it is not currently used?

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5. Does the project involve you using new technology that might be perceived as being privacy intrusive? For example, the use of biometrics or facial recognition.

6. Will the project result in you making decisions or taking action against individuals in ways that can have a significant impact on them?

7. Is the information about individuals of a kind particularly likely to raise privacy concerns or expectations? For example, health records, criminal records or other information that people would consider to be private.

8. Will the project require you to contact individuals in ways that they may find intrusive?

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ANNEX 2: REPORT TEMPLATE

1ST OPEN CALL (OC1)

REPORT TEMPLATE

This report will serve as an evaluation tool to approve the payment of the third party.

This report will also be used for the formal review by the European Commission, which the third parties should attend if required by the European Commission.

This represent a draft of the Report Template and is subjected to change, the final template will be made available during the execution of the Experiment.

Full Title of your proposal
Acronym of your proposal

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SECTION A PROJECT SUMMARY

(Maximum 300 words – summary of project)

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SECTION B DETAILED DESCRIPTION

(minimum 4 pages, and maximum 6 pages)

B.1 CONCEPT AND OBJECTIVES

B.2 SET-UP AND BACKGROUND

B.3 TECHNICAL RESULTS AND FUNCTIONALITY VALIDATION

B.4 IMPACT

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SECTION C FEEDBACK TO THE SPIRIT CONSORTIUM

This section contains valuable information for the SPIRIT consortium and describes the third party's experiences while performing the Experiment.

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SECTION D PROMOTION MATERIAL

(Target length half page)

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SECTION E METHOD OF REPLICABILITY

(maximum 1 page)

This section describes how the proposed solutions can be replicated.

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ANNEX 3: DECLARATION OF HONOUR

Declaration of honour

1. As legal representative of [insert legal entity name], I declare that the entity is not:

a. bankrupt or being wound up, is having its affairs administered by the courts, has entered into an arrangement with creditors, has suspended business activities, is the subject of proceedings concerning those matters, or is in any analogous situation arising from a similar procedure provided for in national legislation or regulations;

b. having powers of representation, decision making or controlling personnel being convicted of, or having been convicted of an offence concerning their professional conduct by a judgment which has the force of res judicata;

c. having been guilty of grave professional misconduct proven by any means which the contracting authority can justify including by decisions of the European Investment Bank and international organisations

d. failing to be compliant with obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which it is established or with those of the country of the contracting authority or those of the country where the contract is to be performed;

e. having powers of representation, decision making or controlling personnel having been the subject of a judgment which has the force of res judicata for fraud, corruption, involvement in a criminal organisation or any other illegal activity, where such illegal activity is detrimental to the Union's financial interests;

f. subject to an administrative penalty for being guilty of misrepresenting the information required by the contracting authority as a condition of participation in a grant award procedure or another procurement procedure or failing to supply this information, or having been declared to be in serious breach of its obligations under contracts or grants covered by the Union's budget.

2. I declare that the natural persons with power of representation, decision-making or control over the aforementioned legal entity are not in the situations referred to in b) and e) above.

3. I declare that I

a. am not subject to a conflict of interest and will take all reasonable measures to prevent any situation where the objectives of the Third Party Project might be compromised due to undeclared shared interests;

b. have not made false declarations in supplying the required information to the Third Party Project, and have not failed to supply the required information;

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c. am not in one of the situations of exclusion, referred to in the abovementioned points a) to f).

4. I certify that I:

a. am committed to participate in the aforementioned Third Party Project as part of the legal entity detailed above;

b. have stable and sufficient sources of funding to maintain its activity throughout its participation in the aforementioned Third Party Project, and will provide any counterpart funding necessary;

c. have or will have the necessary resources as and when needed to carry out its involvement in the above mentioned Third Party Project.

d. will comply with my responsibilities and obligations under the Third Party Project.

e. will respect any third party rights in relation to data provided for processing under the Third Party Project.

f. will abide by international, EU and national laws and regulations that might apply to the substance, or outcome, of data sharing arrangements as relevant to activities that I/my entity will be involved in under the Third Party Project.

g. will not share or disseminate data received through the Third Party Project without the explicit prior consent of the data provider and any others with proprietary rights in relation to that data.

h. will take all reasonable measures to safeguard data provided to me/my entity for use in the Third Party Project against possible misuse and unauthorised access.

i. will abide by international, EU and national laws imposing privacy and data protection requirements (including, in anticipation for its coming into effect, the General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679)) as relevant. In particular, personal data shared under the Third Party Project will not be re-used for purposes outside the Third Party Project without the explicit prior consent of the data controller.

j. will act in good faith as far as reasonably possible under the Third Party Project.

5. I declare that, to the best of my knowledge, I am eligible to apply for the SPIRIT OC1 call and all the information I have provided is true.

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Organisation name:

Name of representative:

Function of representative:

Signature:

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ANNEX 4: SMES CHECK LIST

SMEs CHECK LIST

SPIRIT OPEN CALL 1

Organisation legal name	
Is your organisation engaged in (an) economic activit(y)ies? ***(Yes or No)***	

If NO, you are not an SME. If YES, go to the next set of questions.

What is for your last approved accounting period	
Your number of employees? *(**in annual working unit**)*	
Your turnover? *(**in €**)*	
Your annual balance sheet total? *(**in €**)*	
The duration *(**in months**)* of your last approved accounting period	
The closing date *(**dd/mm/yyyy**)* of your last approved accounting period	
Name and signature of the authorised legal representative	

Official exchange rate at the day of the closure of the accounting period (http://ec.europa.eu/budget/inforeuro)

If your number of employees is equal or superior to 250 persons (AWU) and your annual turnover is equal or exceeds EUR 50 million and/or your annual balance sheet total is equal or exceeds EUR 43 million, you are not an SME (more information here[1]).

If you are under all these ceilings, go to the next set of questions (1 and 2).

[1] https://single-market-economy.ec.europa.eu/smes/sme-definition_en

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1 – Does your organisation meet the following situations (1/2):			
1.1 Linked enterprises	***Upstream***	An enterprise has a majority of the shareholders' or members' voting rights in you organisation ; and or has the right to appoint or remove a majority of the members of the administrative, management or supervisory body of your organisation ; and or has the right to exercise a dominant influence over your organisation pursuant to a contract entered into with you or to a provision in your memorandum or articles of association ; and or an enterprise, which is a shareholder in or a member of your organisation, controls alone, pursuant to an agreement with other shareholders in or members of your organisation, a majority of shareholders' or members' voting rights in your organisation ***[Yes or No]***	
		If yes, please provide the legal name of this (these) enterprise(s) and send the documents requested here above ***[Free text]***	
	Downstream	Your organisation has a majority of the shareholders' or members' voting rights another (or several other) enterprise(s) ; and or has the right to appoint or remove a majority of the members of the administrative, management or supervisory body of another (or several other) enterprise(s) ; and or has the right to exercise a dominant influence over another (or several other) enterprise(s) pursuant to a contract entered into with that (these) enterprise(s) or to a provision in its (their) memorandum or articles of association and or your organisation, which is a shareholder in or member of another (or several other) enterprise(s), controls alone, pursuant to an agreement with other shareholders in or members of that (these) enterprise(s), a majority of shareholders' or members' voting rights in that (these) enterprise(s) ***[Yes or No]***	
		If yes, please provide the legal name of this (these) enterprise(s) and send the documents requested here above ***[Free text]***	

	Upstream	An enterprise (or several enterprises), which is (are) not classified as an upstream linked enterprise (see above) hold(s), either solely or jointly with one	

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1.2. Partner enterprises		or more linked enterprises, 25 % or more of the capital or voting rights of your organisation ***[Yes or No]***		
		If yes, please provide the legal name of this (these) enterprise(s) and send the documents requested here above ***[Free text]***		
		Do(es) this (these enterprise(s) belong to the following list:	Category 1: public investment corporations, venture capital companies, individuals or groups of individuals with a regulate venture capital investment activity who invest equity capital in unquoted businesses ("business angels"), provided the total investment of those business angels in your organisation is less than EUR 1 250 000 ***[Yes or No]***	
			Category 2: universities or non-profit research centres ***[Yes or No]***	
			Category 3: institutional investors, including regional development funds ***[Yes or No]***	
			Category 4: autonomous local authorities with an annual budget of less than EUR 10 million and less than 5,000 inhabitants ***[Yes or No]***	
		Except in the cases set out in the 4 above mentioned, 25 % or more of the capital or voting rights of your organisation are directly or indirectly controlled, jointly or individually, by one or more public bodies ***[Yes or No]***		
	Downstream	Your organisation holds, either solely or jointly with one or more linked enterprises, 25 % or more of the capital or voting rights of another (or several other) enterprise(s) ***[Yes or No]***		
		If yes, please provide the legal name of this (these) enterprise(s) and send the documents requested here above ***Free text]***		

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2- If according to your answers to the precedent group of questions you have linked and/or partner enterprise(s), please provide for each of them the following data for their last approved accounting period, except for those belonging to one (or more) of the 4 categories mentioned under upstream partners enterprises:

Upstream Enterprises								
Legal name of the enterprise	Status of the enterprise	Closing date of last approved accounting period	Duration of last approved accounting period	Share in the capital of your organisation	Share in the voting rights of your organisation	Number of employees	Turnover	Annual balance sheet total
	(linked or partner)	(dd/mm/yy)	(in months)	(%)	(%)	(In annual working units)	In Euro)	(In Euro)

Downstream Enterprises								
Legal name of the enterprise	Status of the enterprise	Closing date of last approved accounting period	Duration of last approved accounting period	Your share in its capital	Your share in the voting rights of your organisation	Number of employees	urnover	Annual balance sheet total
	(linked or partner)	(dd/mm/yy)	(in months)	(%)	(%)	(In annual working units)	n Euro)	(In Euro)

For each abovementioned enterprise, multiply the number of employees, the turnover and the annual balance sheet total by the highest % (either capital share or voting right share). Make the sum per category (eg number of employees, turnover and annual balance sheet total) and add it to your own number of employees, turnover and annual balance sheet total. If according to the results, you are under the ceilings established by the Recommendation 2003/361/EC relating to the definition of micro, small and medium-sized enterprises you are an SME. If not, you are not an SME.

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ANNEX 5: AGREEMENT FOR THE USE OF THE SPIRIT PLATFORM FOR EXPERIMENTATION

This is a draft template and may be subject to change.

Agreement for the Use of the SPIRIT Platform for Experimentation

This Agreement for the Use of the SPIRIT Platform for Experimentation (hereinafter referred to as the "Agreement") is executed by and between:

1. Experimenter:

[FULL NAME + LEGAL FORM], with its registered office situated at [ADDRESS] and hereby duly represented by [NAME+TITLE]

2. Coordinator:

Interuniversitair Micro-Electronica Centrum vzw (IMEC), a non-profit organisation duly organised under the laws of Belgium, Register of Legal Entities Leuven VAT BE 0425.260.668, with its registered office situated at Kapeldreef 75, 3001 Leuven, Belgium and hereby duly represented by Luc Van den hove, President and CEO

relating to the research project under the Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020), Call: HORIZON-CL4-2021-HUMAN-01, Topic: HORIZON-CL4-2021-HUMAN-01-25 for the implementation of the project entitled "Scalable Platform for Innovations on Real-time Immersive Telepresence SPIRIT" (hereinafter referred to as "SPIRIT" or "the Project)

Hereinafter individually referred to as the "Party" and jointly as the "Parties"

- WHEREAS as from October 1st, 2022, the Coordinator participates in the Project together with:
  - ERICSSON GMBH (EDD), established in PRINZENALLEE 21, DUSSELDORF 40549, Germany,
  - DEUTSCHE TELEKOM AG (DT), established in FRIEDRICH-EBERTALLEE 140, BONN 53113, Germany,
  - FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer), established in HANSASTRASSE 27C, MUNCHEN 80686, Germany,
  - UNIVERSITAET KLAGENFURT (UNI-KLU), established in UNIVERSITAETSSTRASSE 65-67, KLAGENFURT 9020, Austria,
  - DIGITAL FOR PLANET-D4P, established in 111 Überlandstrasse, 8600

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Dübendorf, Switzerland
- UNIVERSITY OF SURREY, established by Royal Charter 1966 whose administrative offices are Guildford, Surrey GU2 7XH
- AWTG LIMITED, established in 8 Canham Mews, Canham Road, W3 7SR London, United Kingdom

hereinafter collectively referred to as the "SPIRIT Partners" or "Beneficiaries";

- (only in case the proposal is made by a consortium) WHEREAS as from ……., the Experimenter participates in the Experiment together with:
  - ……., established in …….,
  - ……., established in …….,
  - ……., established in …….,
  - ……., established in …….,

  hereinafter collectively referred to as the "Experimenters";

- WHEREAS the SPIRIT Partners have amongst themselves entered into a written agreement detailing their respective rights and obligations under the Project;

- WHEREAS the purpose of SPIRIT is the adoption of the SPIRIT Platform (hereinafter referred to as the "Platform") , being developed as a distributed, interconnected testbed infrastructure, enabling large-scale testing of heterogeneous telepresence applications in real-world Internet environments, to test a variety of additional use cases covering heterogeneous vertical sectors through third party participation;

- WHEREAS the Platform consists of individual testbeds and tools put at the disposal by different resource providers;

- WHEREAS the Experimenter through the execution of the submitted proposal (hereinafter referred to as the "Proposal") under an open call (in accordance with the rules detailed in the open call documents) has applied to use the Platform to be provided by the SPIRIT Partner(s) identified in the Proposal;

- WHEREAS on the basis hereof the Experimenter will be entitled to use the Platform subject to the terms and conditions described hereunder;

NOW, THEREFORE, the Parties agree as follows:

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Article 1 - Definitions

When used herein, unless the context requires otherwise, the following words and expressions shall have the meaning as stated hereunder:

1.1. "Experiment(s)" means the experimentation activity(ies) undertaken by the Experimenter, alone or (if applicable) with the patron, for testing new ideas and technologies in the area of computer networking. Details of the Experiment can be found in the Proposal submitted by the Experimenter.

1.2. "Experiment Results" means any tangible and intangible outputs of the Experiments that are generated by or on behalf of the Experimenter (e.g. involvement of patron) as well as any rights attached to them.

1.3. "Maximum Budget" means the maximum amount of funding to be made available by the Coordinator to the Experimenter by way of financial support as further detailed in Appendix 1 hereto.

1.4. "Platform" means the SPIRIT Platform resources and tools. The Platform has been constructed for experiment-driven research activities, where experiment-driven research is defined as any activity that furthers the Experimenters' knowledge and/or understanding of concepts, tools, algorithms, protocols, provided that this activity is legal. Specific Platform components are made available to the Experimenter for the performance of Experiment(s) in accordance with the terms and conditions of the Agreement.

Article 2 – Scope of the Agreement - Responsibilities

2.1. Subject to the terms and conditions set forth in the Agreement, the Experimenter is hereby granted the non-exclusive, non-sub licensable, non-transferable right to use the Platform for the performance of Experiments. Any other use of the Platform by the Experimenter than the use expressly described in the Experiments is not permitted.

2.2. Responsibilities of the Experimenter

2.2.1. The Experimenter shall perform its tasks in accordance with the conditions of the Agreement and the Proposal towards the implementation of the Experiment to the best of its ability and in accordance with any guidelines issued by the Coordinator.

2.2.2. The Experimenter shall not, directly or indirectly:

- rent, lease, transfer or sub-license the Platform, nor permit any third party to do so;
- use the Platform to host commercial activities or in a way that limits the rights of others to use the Platform;
- remove, alter, cover or obscure any copyright notices or other proprietary rights notices placed or embedded on or in Platform;
- reverse engineer, decompile, disassemble, re-engineer, translate, integrate, adapt, create derivate works or updates of the Platform or any part thereof nor permit, allow, or assist any third party to do so.

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2.2.3. The Experimenter acknowledges and agrees that besides the terms and conditions detailed in the Agreement, specific regulations of the party providing specific components within the Platform may apply. In case the party providing and maintaining such specific components requires specific or extra terms and conditions to be agreed upon, the Experimenter will be required to agree and sign this separate document as well. This document will form an annex to the Agreement. It is the Experimenter's responsibility to remain aware of all applicable regulations and of any changes made to them.

If there is evidence that the actions of the Experimenter are adversely impacting the quality offered by the Platform, the Coordinator is empowered to take reasonable measures to terminate or reprioritise usage in order to protect the overall operation of the Platform.

2.2.4. Should the Experimenter's usage imply giving access to the Platform to third parties, the Experimenter understands it will need to gather explicit consent from the Coordinator and agrees to enforce any restrictions imposed by the Coordinator and accepts to fulfill its legal obligations as a service provider regarding data protection and retention laws.

2.2.5. The Experimenter is responsible and liable for any and all actions performed by using the Platform. The Experimenter undertake that it shall:

- comply with all instructions and regulations relating to the use of the Platform;
- not use the Platform in a manner which is or is likely to adversely affect the Platform or which may disturb the working of, interfere or damage the Platform or any other system. In case of misuse, the Experimenter is responsible for restoring all damages to the Platform and is responsible for any loss and damages incurred;
- not interfere with others' work or attempt to invade their privacy;
- not use the Platform in a manner that may damage the SPIRIT Partner'(s) t's good name and reputation or may infringe the intellectual or industrial property rights of a Party or any other third party. Copyright, other intellectual property right and data protection legislation must be observed by the Experimenter.

2.2.6. The Experimenter shall, in a timely manner, provide all information reasonably required by the Coordinator such as but not limited to the information required for the Coordinator to comply with its obligations under the Agreement, the Grant Agreement with the European Commission and the Consortium Agreement.

2.2.7. The Experimenter shall ensure that neither the Experimenter nor anyone of its behalf or with its consent causes any damage to the Platform.

2.2.8. The use of the Platform is at Experimenter's own risk and responsibility. The Coordinator does not assume any liability in regards to interruption, corruption, loss or disclosure of services, processes and data hosted on the Platform. The Experimenter acknowledges and agrees that the uninterrupted availability and use of the Platform cannot be ensured ("reasonable efforts").

The Experimenter shall take appropriate measures to protect its credentials and prevent their use by third parties. The information the Experimenter provides when requesting an account should be correct. The Experimenter is responsible for all and any loss or damages incurred by the Coordinator, the Provider and/or the Beneficiaries as a result of any unauthorised transfer by them of their password.

2.3. The Platform will be put at the disposal of the Experimenter free of charge for the Experiments detailed in the Proposal and on a reasonable effort basis.

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2.4. The Coordinator shall give the Financial Support for the Experiment in accordance with the conditions detailed in article 3 of the Agreement.

Article 3 – Financial support

3.1. For the performance of the Experiment in accordance with the terms and conditions of the Agreement, the Coordinator agrees to provide within the Maximum Budget financial support to the Experimenter. Details can be found in Appendix 1.

3.2. Invoicing of the financial support will be effectuated by the Coordinator for the Experimenter as detailed in the Open Call document. Payment is subject to receipt of the funding from the European Commission, acceptance by the Beneficiaries of the reports and the attendance of the meetings as detailed in the Open Call documents.

3.3. The Experimenter hereby agrees to be bound by the obligations as set forth in the articles 22, 23, 35, 36, 38 and 46 of the Grant Agreement. These articles can be found http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

Article 4 – Intellectual property – Consent to use data

The Results achieved by the Experimenter using the Platform will be owned by the Experimenter.

The Experimenter will deliver a final report describing the Results of the Experiment and the experience gained in using the Platform. This final report can be made public to the European Commission and all Beneficiaries including their Affiliated Entities.

Publications and demonstrations made based on the Results of the Experiment should clearly mention the usage of the Platform and the provider and refer to the Project even if the publication or demonstration takes place after the end of the Experiment.

The Experimenter agrees that the Coordinator and the other relevant SPIRIT Partner(s) may monitor the Platform and traffic for vulnerabilities and conformance to authorised use and may collect and use data and information, including but not limited to the information about Experimenter's use of the Platform. This information, provided it is anonymised, can be used by the SPIRIT consortium to improve the Platform.

Article 5 - Liability – Warranty

5.1. The Experimenter shall fully and exclusively bear the risks in connection with the Experiment, including without limitation to any risk arising from the use of the Platform. The Experimenter shall hold harmless and indemnify the Coordinator and/or the SPIRIT Partners harmless against all losses, repayments, liabilities, claims or damages which the SPIRIT Partners and/or the Coordinator as a result thereof would incur or suffer or have to pay to the European Commission or any third parties. In addition, should the European Commission have a right of recovery against the Coordinator or any other Beneficiary regarding any or all of the Financial Support granted under the Agreement, the Experimenter shall repay the sums in question in the terms and on the dates stipulated by the Coordinator.

5.2. No warranty whatsoever is given with respect to the Platform, support and all information provided hereunder including, but not limited to, any express or implied warranty for use,

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availability, reliability, quality, fitness for a particular purpose or non-infringement of third party intellectual property rights. They are provided “AS IS”.

5.3. To the extent authorised under mandatory law, in no event shall the Coordinator or any of the other Beneficiaries be liable to the Experimenter or any person or entity connection with any of them for costs of procurement of substitute goods, property damage, personal injury, profit loss, business interruption, or for any other special, indirect, consequential or incidental damages, however caused, whether for breach of warranty, contract, tort or negligence, strict liability or otherwise.

The Coordinator’s liability in aggregate, arising out of or in connection with the Experiment and/or the Agreement, however caused, whether for breach of warranty, contract, tort or negligence, strict liability or otherwise, shall not exceed the Maximum Grant.

5.4. The Coordinator is not liable for any failure due to the direct or indirect use, loss of use, or delay in delivery of the Platform or the services provided herein, unless the Experimenter can show willful misconduct, fraud or deceit by the Coordinator.

Article 6 – Term and termination of the Agreement

The Agreement enters into force on the date detailed in Appendix 1 for the period provided in Appendix 1, unless sooner terminated in accordance with article 6. The Experimenter acknowledges and agrees that its authorised use of the Platform is only effective during the term of the Agreement.

The Experimenter’s right to use the Platform and the Agreement are automatically and without notice from the Coordinator terminated if the Experimenter fails to comply with any of the obligations detailed in the Agreement.

Upon termination of the Agreement, the Experimenter shall immediately discontinue all use of the Platform.

Article 7 - Applicable law

The Agreement is governed by the laws of Belgium without reference to its conflict of law principles. Any dispute arising out of the Agreement shall be settled by the competent courts located in Brussels (Belgium).

Article 8 - Miscellaneous

8.1. The Experimenter represents and warrants that the Platform shall not be evaluated or employed for the purpose of use in the design, development, production, stockpiling or use of weapons of mass destruction, such as nuclear, chemical or biological weapons or in any manner for a military end use or with a military end-user. The Experimenter shall comply with applicable laws and regulations controlling the export of technical data, computer software and all other export controlled commodities and ensures that it will not include the participation of persons on any restricted party listing in accordance with applicable national and international regulations. The Experimenter agrees to indemnify, defend and hold harmless the Coordinator and the other SPIRIT Partners from any and all claims, damages and other liabilities resulting from the Experimenter’s violation of any applicable export regulations.

8.2. The Parties may sign and deliver this Agreement by electronic transmission. Each Party agrees that the delivery of this Agreement by electronic transmission shall have the same force and

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effect as delivery of original signatures and that each Party may use such electronic or facsimile signatures as evidence of the execution and delivery of this Agreement by the Parties to the same extent that an original signature could be used.

AS WITNESS, the Parties have caused the Agreement to be duly signed by the undersigned authorised representatives in separate signature pages.

For Experimenter,

Name:

Title:

Date:

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For IMEC,

Luc Van den hove

President & CEO

Date:

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Appendix 1:

Experiment – financial information

Duration of the Experiment:

Start date: xxx

End date: xxx

Budget Experimenter: xxx k€

Budget Patron: xxx k€

Payment conditions (subject to payment conditions detailed in article 3.3): (timing of the payment, unless this is included in the open call document)

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