



Adaptive edge/cloud compute and network continuum over a heterogeneous sparse edge infrastructure to support NextGen applications

Deliverable D7.1

Dissemination & exploitation plan



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EXECUTIVE SUMMARY

ACCORDION project aims at unlocking the full potential of a big class of applications that are too latency-sensitive, or data-dependent, to be moved to the public cloud. In particular, ACCORDION couples efficient, decentralized and AI-based solutions for cloud and edge resource federation with novel approaches for application definition management and generation at runtime.

This deliverable provides the ACCORDION Dissemination and Exploitation plan. Exploitation activities seek to generate new revenue streams for consortium members by introducing new products and services to the market, increasing the market share of existing offerings, securing intellectual property rights through standardization, as well as reducing costs by adopting new processes. These gains can be enjoyed by a single beneficiary or shared among several ACCORDION partners. But in order for these benefits to materialize, selected pieces of information need to be disseminated to external parties that can influence the quality of ACCORDION outputs (such as the research community) or communicated with end users, the media and third parties (e.g., policy makers) in an easy-to-digest way.

The ACCORDION dissemination, communication and exploitation plan has been broken down into three consecutive phases:

- a) the Development phase during the first 2 years of the project where all envisioned ACCORDION products will be specified, developed, integrated, validated and finetuned where necessary. Communication and dissemination will gradually evolve from explaining our vision and approach followed to results obtained and progress beyond the state-of-the-art. Exploitation activities will start with an initial market analysis for each ACCORDION asset/product for revealing end-users' pain points and technology gaps and evolve towards the preliminary formation of individual and joint exploitation plans by consortium members.
- b) the pre-commercialisation/"result wrap-up" phase during the last year of the project where maturity of ACCORDION outputs will increase and dissemination and communication strategy will continue to be results-oriented in order to stimulate further the market for ACCORDION platform. Regarding exploitation activities, consortium members will perform a techno-economic analysis for assessing the sustainability of individual and joint commercialization plans and discuss details about the business plan(s) to be followed.
- c) The commercialisation/"follow-up" phase that will commence at the end of the project and targets the launch of products and services based on ACCORDION results; most likely a subset of these as not all ACCORDION outputs are expected to be ready for prime time. This will allow European telecommunication operators, cloud and edge infrastructure providers, as well as service providers of any vertical industry and size, to capitalize on their local resource and other advanced technologies, such as 5G, for enhancing the quality of experience, cost effectiveness and security offered to end-users. To this end, the marketing and business development departments of consortium members, either individually or as part of a joint venture, will continue interacting with targeted audience and explore the path for future upgrades to those product offerings.

For each of those phases we outline a set of clear activities and tools through which we will be able to interact with targeted stakeholder groups in an effective way. Acknowledging that ACCORDION members' business development departments, infrastructure providers, service providers in several vertical markets, end-users, policy makers, standardization bodies and research communities (including other research projects) have different backgrounds and objectives, separate (yet linked) strategies and roadmaps have been defined for dissemination, communication and exploitation purposes. Furthermore, a set of Key Performance Indicators (KPIs) has been defined for benchmarking these activities, as well as an approach utilizing internal tools for monitoring progress and taking corrective measures when necessary.

DISCLAIMER

ACCORDION (871793) is a H2020 ICT project funded by the European Commission.

ACCORDION establishes an opportunistic approach in bringing together edge resource/infrastructures (public clouds, on-premise infrastructures, telco resources, even end-devices) in pools defined in terms of latency, that can support NextGen application requirements. To mitigate the expectation that these pools will be “sparse”, providing low availability guarantees, ACCORDION will intelligently orchestrate the compute & network continuum formed between edge and public clouds, using the latter as a capacitor. Deployment decisions will be taken also based on privacy, security, cost, time and resource type criteria.

This document contains information on ACCORDION core activities. Any reference to content in this document should clearly indicate the authors, source, organisation and publication date.

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GLOSSARY

5G	5th Generation Mobile Network
A&PS	Advisory & Professional Services
AR	Augmented Reality
CCU	Concurrent Users
DevOps	Development and Operations
DevSecOps	development, security and operations
DMP	Data Management Plan
EC	European Commission
ECS	Entity Component System
EU	European Union
FAIR	Findable, Accessible Interoperable Re-usable
H2020	Horizon 2020 EU Framework Programme for Research and Innovation
HiPEAC	High Performance Embedded Architecture and Compilation
HMD	Head Mounted Display
ICT	Information Communication Technology
IoT	Internet of Things
IP	Intellectual Property
IT	Information Technology
KPIs	Key Performance Indicators
MEC	Multi-access Edge Computing
PPAI	Privacy-preserving AI
QoE	Quality of Experience
R&D	Research and Development
TRL	Technology Readiness Level
VIM	Virtualized Infrastructure Manager
VR	Virtual Reality
WP	Work Package

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1 Introduction

ACCORDION project aims at unlocking the full potential of a big class of applications that are too latency-sensitive, or data-dependent, to be moved to the public cloud. In particular, ACCORDION couples efficient, decentralized and AI-based solutions for cloud and edge resource federation with novel approaches for application definition management and generation at runtime. The combined exploitation of these assets with advanced technologies such as 5G, will allow all European telecommunication operators, cloud and edge infrastructure providers, as well as service providers of any vertical industry and size, to capitalize on their local resource and bring benefit to end-users in terms of higher quality of experience, cost effectiveness and security.

1.1 Purpose of this document

This report sets out the ACCORDION Dissemination and Exploitation plan that outlines a set of activities and initiatives through which we will be interacting with key stakeholders and end users, including other projects. This impact creation plan was drafted during the inception phase of the project so that the steps referred to in it to be implemented immediately after the start of the project. Nevertheless, we expect that this plan will be revised on a regular basis throughout the life of the project and the purpose of this document is to make it more precise, ensuring that it can effectively protect, exploit, disseminate and communicate the generated results.

1.2 Objectives

Specific objectives of the Dissemination and Exploitation plan are to:

- Manage intellectual property rights (IPR) in line with the different business strategies and/or research/educational interests, so that the ACCORDION partners will take concrete advantage of the project results within their organization and optimally exploit project results;
- Identify and enable smooth exchanges within targeted stakeholder groups;
- Promote the project actions and findings to the scientific community, industry stakeholders, policy makers and society beyond the consortium;
- Capture appropriate and synthesized key messages on results for active knowledge transfer through communication tools and training.

1.3 Key terms

Some of the key terms used in this document are defined¹ as following:

- Exploitation “means the use of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in reusing the acquired know-how for given business purposes, or in creating and providing a service, or in standardization activities”
- Dissemination “means the public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium”.
- Communication activities are complementary to dissemination and exploitation ones, calling attention of multiple audiences about the research undertaken (in a way that they can be understood by non-specialists) and address the public policy perspective of EU research and innovation funding.

The efforts of dissemination and exploitation can further be segmented into intra-partner, inter-partner and external:

- Intra-partner efforts: These activities take place among the different departments of each partner so that project developments become part of the product/service portfolio.
- Inter-partner efforts: These activities are being carried out among consortium partners. This dissemination is playing a key role in smoother project execution, exploitation of potential synergy and ensuring building on complementary strengths of the consortium.
- External efforts: External dissemination efforts take different forms based on the content being transmitted and the audience being addressed. The consortium has segmented the public according to the goals and objectives while keeping in mind the potential relationship to be sought with the stakeholders.

1.4 The ACCORDION Impact Creation Plan

This section gives a high-level view of the ACCORDION dissemination, communication and exploitation plan, which has been broken down into three phases for better clarity on the objectives and strategy to be followed. Namely these phases are Development, Pre-commercialisation/“results wrap-up” and Commercialisation/“follow up”.

¹ European IPR Helpdesk, Fact Sheet “The Plan for the Exploitation and Dissemination of Results in Horizon 2020”

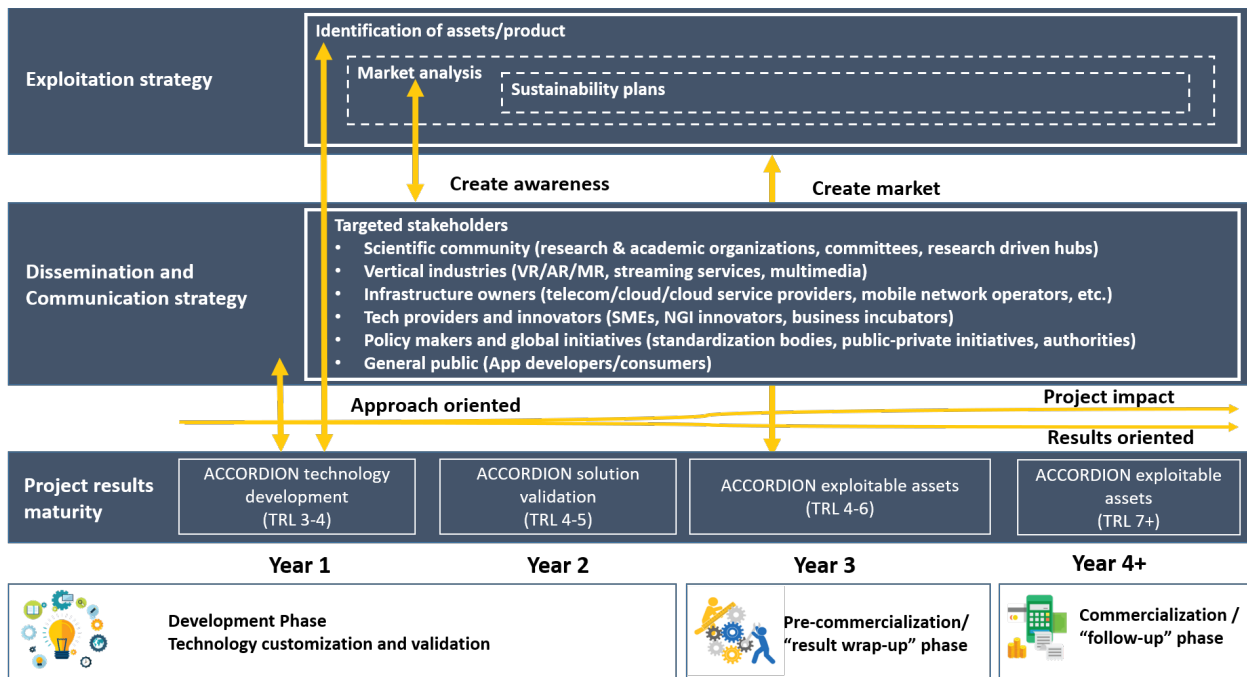


Figure 1 – ACCORDION Impact Creation Plan

The **Development phase** is expected to last for 2 years. In particular, from M1 to M12 the superset of ACCORDION assets/products will be identified and (TRL² 3) prototypes will become available. Some of those individual assets will be successfully validated in lab (TRL 4). During this period, the aim of the communication and dissemination strategy is to create awareness and greater visibility for ACCORDION vision and approach followed. To this end, the most suitable channels from a wide set of dissemination and communication tools will be selected, e.g., the project’s website, social media handles and scientific publications, in order to address the right target audience. The set of recipients includes industry representatives from the telecommunications domain (e.g., cloud operators, mobile network operators, technology providers, service providers, etc), the vertical industries, as well as the research community, policy makers and the general public. At the same time, an initial market analysis for each ACCORDION asset/product will be performed, revealing the end-users' pain points that remain unaddressed from competitive solutions.

Then, for the next 12 months, end-users will be invited to participate in pilots that involve the widest possible ACCORDION platform and which are expected to validate that although not features are present, the individual components will be gradually moving to TRL-5. The goal of the dissemination and communication strategy during this period will be to improve stakeholders’ understanding for ACCORDION platform by focusing on the preliminary benefits that can be obtained from the initial release of the system and the related pilot activities. In that way we expect to further engage the target audiences and attract the interest of early adopters in ACCORDION. Furthermore, a more detailed market analysis will be performed and candidate individual and joint exploitation plans will be formed by consortium members.

² Technology Readiness Level

The second phase is named **Pre-commercialisation/“result wrap-up” phase** and lasts from M24 to M36. Even though key use-cases involving the full-blown ACCORDION ecosystem will be demonstrated in an operational environment by M33, we expect that most of the components will have reached TRL 5 (or even 6). Furthermore, most of these components will be stable enough at M24 and thus, content-wise the dissemination and communication strategy will continue to be results-oriented, but we expect the content to be further tailored to individual target audiences in order to create or stimulate further the market for ACCORDION platform. At the same time, a techno-economic analysis should identify the individual and joint commercialization plans appearing to be sustainable for varying market scenarios. Furthermore, discussions on the business plan(s) to be followed are expected to take place during this period.

The last phase of ACCORDION impact creation plan is the **Commercialisation/“follow-up” phase** and it is expected to start at M36, i.e., after the end of the project. During this phase the consortium members, either individually or as part of a joint venture, will make sure that the constituent technologies are well-integrated and take the appropriate actions to demonstrate that the full system can meet user requirements in an operational environment (TRL-7 and beyond). The respective marketing and business development departments are expected to continue interacting with targeted audience and explore the path for future upgrades to the product/service offerings that will have emerged from ACCORDION results.

1.5 Document structure

This report is structured as follows: chapter 2 elaborates on the exploitation strategy of ACCORDION. The dissemination and exploitation strategy is explained in chapter 3, while chapter 4 describes the toolkit used for interacting with the full spectrum of the ACCORDION community. Chapter 5 lists the Key Performance Indicators (KPIs) for dissemination and communication activities and the approach for monitoring their success, while chapter 6 concludes this report.

2 Exploitation strategy

This chapter elaborates on the ACCORDION exploitation strategy, its phases and the associated activities that will combine individual assets into a full ecosystem, which enables the execution of next generation applications on a sparse and dynamic set of resources standing at the edge of the network. This not only requires good market fit and smooth interoperability at a technical level, but also alignment of the consortium members' business objectives and plans.

2.1 Objectives and phases of exploitation strategy

2.1.1 Objectives of exploitation strategy

The exploitation plan will be elaborated and continuously updated, aiming at maximizing the exploitation levels of the project, from the involved stakeholders. Three main Pillars will guide ACCORDION exploitation activities, which are elaborated in the following:

- 1) *Assist and complement the technical development with the business perspective.* Exploitation decisions will be guiding project development in the most promising direction in terms of exploitation opportunities. Market will be continuously analyzed with respect to the latest business requirements of ACCORDION stakeholders, technology users and technology providers. Market analysis will ensure that ACCORDION is positioned in the leading areas of Edge-computing solutions for data-intensive, low-latency services, products and offerings for NextGen applications.
- 2) *Ensure quickly reaction to market needs.* Exploitation activities should ensure that ACCORDION will be able to quickly react to the requirements of the market, considering enduring technology trends that shape strategies and dominate investment priorities. There is a need not only for continuously monitoring the market but also for creating the mechanisms to quickly identify any key missing desirable and usable features and adopt new trends.
- 3) *Prepare for the exploitation of project's results towards the industry.* Exploitation activities will also describe how the consortium will continue to evolve the vision of the project beyond its official duration. To that end, special focus will be given on taking advantage of ACCORDION partners' synergies and competitive advantages in pursuing a joint exploitation plan, which will be building upon the individual commercialization activities and aim for fair and long-term sustainable market offerings. The ultimate goal is to enter the commercialization phase at the end of the project.

2.1.2 Phases of exploitation strategy

The exploitation strategy includes several phases, outlined in the figure below, which aim to lead to concrete business plans with detailed go-to-market approach(es).

Market insights and business requirements (proposal phase –M3): As part of the initial analysis of market landscape, ACCORDION consortium has utilized the following three different models to get in-depth

knowledge of the targeted markets (namely AR/VR-enabled training, multi-player gaming and multimedia content delivery):

- the Market insight model, which involves studying publicly available industry reports for identifying long-term and emerging macroscopic market trends, including estimates about market size evolution by user device and age cluster, as well as geographic distribution;
- the Client insight model, which target to identify the key activities that the main target groups seek to perform and better understand their existing pain points, as well as expected gains and the
- Competition insight model that attempts to list key competitors and their product offerings with special emphasis on existing and planned features, business model, market share, as well as, strengths and weaknesses.

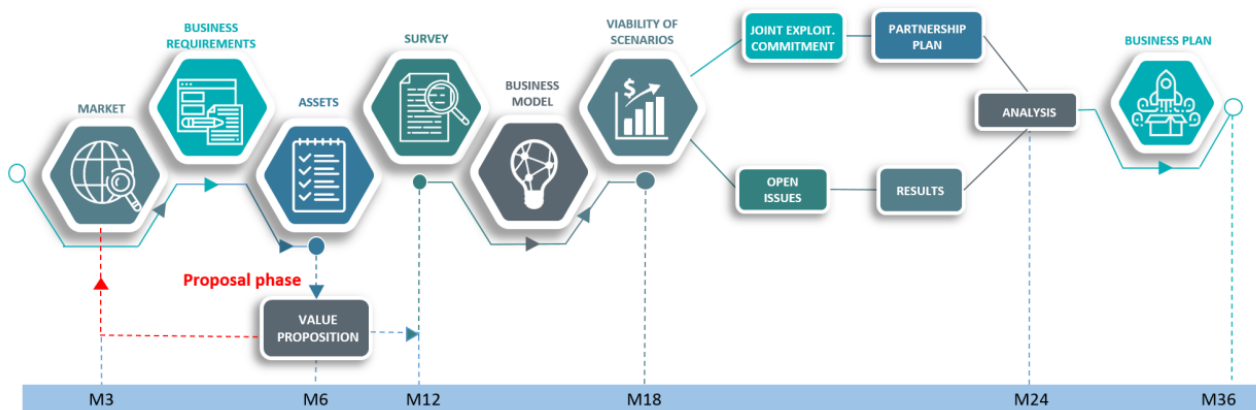


Figure 2 - Exploitation strategy phases

Explore the project activities, define assets and derive a value proposition (M1-M12): Building upon the results of the previous phase (and especially on the client and competition insight model), the objectives of the project as well as the identified assets will be analyzed. To this end, SWOT analysis will be complemented by TOWS analysis for identifying the most prominent technology gaps that can be successfully filled, while value network analysis will be employed for understanding the flow of assets, information and money in the respective vertical markets.

Business requirements validation (M12-M18): During the period M12-M18 of the project a set of use-case scenarios will be formulated and subsequently be demonstrated by asking a sufficient number of end users to use proof-of-concept prototypes during the first pilot run. These participants will fill in a survey at the end of the demonstration activity in order to test market readiness of the first results of the project and perform any adjustments based on the feedback obtained.

Business model (M13- M18): Based on the outputs of the previous phases a set of candidate business models will be co-developed using the ‘Business Model Canvas’ methodology, where different ACCORDION members take on different roles of the value network aiming to capture revenues for generating profits in the long-run. These business models may involve the superset or any subset of ACCORDION technologies and consequently a varying number of consortium members.

Viability of scenarios (M19- M34): The sustainability of the aforementioned candidate business models will be assessed in a number of business scenarios (e.g., pessimistic, baseline and optimistic ones) that involve sets of assumptions on key cost and revenue drivers. In order to do so, we will perform a discounted cash flow analysis for each business model and business scenario and analyze the attractiveness of different federation schemes. Partners will be requested to comment on the attractiveness of the business models and federation schemes and explore internally whether and how their individual and joint exploitation plans, motivations, activities and existing partnerships can support it.

Business plan - Go to market (M32 – M36): The final phase is the development of a sound business plan by gradually implementing the selected business models, agreeing on how the costs arising from legal protection procedures (e.g., patent filing and examination fees) and revenues should be shared.

2.2 Intellectual Properties (IP) and assets per partner

The following table lists the exploitable assets per consortium member and how these will evolve over the course of ACCORDION project.

Table 1 - Exploitable assets per partner

Partner	Background ³ Knowledge/Intellectual Properties	Foreground ⁴ Knowledge/Intellectual Properties
<p>TID</p>	<p>Weblog Privacy Analyzer (TRL 2): analyzes user weblogs and extracts the monetary value of users during their sessions. It can detect personal data leakage to advertisers via the real-time bidding and cookie synchronization protocols.</p> <p>Privacy-preserving AI (PPAI) Framework (TRL2) – This framework is designed to allow different Telefonica units to compute AI models across data sources, in a decentralized fashion, thus allowing better scalability and preservation of data sources’ privacy.</p>	<p>Weblog Privacy Analyzer will be used to assess value of users’ data (as extracted from delivered ads during their web browsing) at the edge, i.e., in a local device, without (or before) sharing data with the cloud/server (TRL 4).</p> <p>In ACCORDION, TID plans to further develop this framework, test its implementation across different devices, such as mobile and home devices, and improve its modelling capabilities for data processing, while also improving its privacy guarantees. Aiming to reach TRL 5.</p>

³ Knowledge/IP available at the start of the project

⁴ Knowledge/IP produced during the project’s tenure

<p>HPE</p>	<p>HPE brings in the project its existing know-how in particular on container technologies, DevOps/DevSecOps methodologies, infrastructure provisioning and provider federations. No background IP is involved.</p>	<p>HPE exploitation will mostly harness the generated know-how, especially the innovation generated by ACCORDION on the federation mechanisms, resource orchestration, mini-VIM⁵s and DevSecOps methodology. No foreground IP is expected to be generated.</p>
<p>NEC</p>	<p>Automated Unikernel Tool takes as input a target application, analyze its dependencies, and automatically creates a set of lean images, one per user-selected target platform, each containing the necessary application functionality (TRL 3).</p>	<p>NEC will use the Automated Unikernel Tool to generate images that it will deploy and test in test environments in order to derive performance numbers towards productization (TRL\geq4).</p>
<p>BSOFT</p>	<p>BlueSoft brings to the project its knowledge and many years of experience in the field of Information Technology (IT) systems integration, designing advanced digital IT solutions based on microservices and cloud computing technologies. We would like to use our own solution (Starboost) to manage microservices as one of the elements of Accordion platform. Starboost is a comprehensive microservices digital canvas which is boosting process of digital transformation from monolith to microservices and DevOps. Solution provides orchestration of services automating resource allocation to microservices and is ready for a cloud or on-premise deployment. An additional contribution will be our practical experience in the areas of DevOps and Agile driven by an experienced team of architects and developers, ready to share their experience and knowledge with the other members of the consortium.</p>	<p>As part of the Accordion project, BlueSoft is going to enhance its knowledge and experience in the management of distributed applications based on micro-services. Additionally, we want to gain knowledge related to the practical use of microcomputers (Raspberry Pi, Arduino and others). Another area of our interest is the knowledge of real-time monitoring of applications and resources and prediction of potential problems and failures. The ACCORDION project will also be an excellent opportunity to develop the StarBoost platform towards supporting hybrid application deployment allowing simultaneous deployment in the cloud and on the edge.</p>

⁵ Virtualized Infrastructure Manager

OVR	<p>OVR as one of the main Use-Case providers brings into the project the proprietary, gamified, multiuser VR software platform (MAGES SDK), which supports current and forthcoming Virtual Reality Head Mounted Displays (VR HMDs). The platform integrates a custom interpolation engine (Geometric Algebra Interpolation Engine) as part of the SDK offering network optimizations for reducing data transfer and compressing broadcasted values from ConCurrent Users (CCU's) following a client-server topology over the network based on Unity networking. Background IP is involved.</p>	<p>OVR will utilize the ACCORDION framework for managing the different data-services and available network resources (HMD, edge miniclouds and cloud resources) across the cloud continuum, and thus augment the processing capabilities of the end-devices while supporting the dynamic optimization of the interpolation engine based on the network characteristics. Foreground IP may be expected</p>
ORBK	<p>Innova engine multi: Innovative engine for online, cross-platform multiplayer gameplay for mobile games, along with a set of tools necessary for system testing, based on the Entity Component System (ECS). (TRL 4)</p>	<p>ORBK's multiplayer engine will be able to support up to 100 CCU's (concurrent users) and handle huge number of in-game events while performing full simulation of the game world and generate responses with minimal possible delay (<100ms). (TRL 6)</p>
PLEX	<p>Traqus: A Plexus localization product using WiFi infrastructure, will become more sophisticated through AI techniques and the use of edge computing capacities.</p>	<p>Optimization of the content delivery path from cloud to low-end user devices, especially mobile devices. A typical scenario involves the generation of content at a centralized infrastructure and its streaming to the individual clients based on their own feedback/input.</p>

2.3 Exploitation plans

2.3.1 Individual exploitation plans

The strategic exploitation and development plans for each industrial and non-profit partner are being outlined in the following subsections.

2.3.1.1 INDUSTRIAL PARTNERS

Table 2 - Exploitation Plans per Business partner

Business Partner	Exploitation plan
<p>TID</p>	<p>TID is the Research and Development (R&D) branch of Telefonica. Thus, TID has plans to introduce the results of the project to Telefónica Operating Businesses, by running demonstrators and trials and seeking to find applications within their businesses. Telefonica is currently developing and extending its next (fourth) generation platform that will make cognitive sense of a flow of data, also at the edge nodes, and will facilitate the discovery of new value-added propositions based on the insights from the project. Being part of a telecom operator, TID is especially interested in the novel edge/cloud data services and how they could be applicable in both fixed and mobile environments. TID is especially interested to tech-transfer results from the project to the ElevenPaths⁶ business unit of Telefonica that focused on cybersecurity B2B services. In addition, TID is interested in the deployment of technologies built within the project, in the future telco-edge infrastructure that Telefonica is investing. Also, the work done within the project (Weblog Privacy Analyzer) can provide guidelines for how to add value to the users’ personal data and how they can be used in data services inside Telefonica and beyond. Furthermore, TID will make use of the Federated and other Privacy-Preserving Machine Learning services (Privacy-preserving AI Framework (PPAI)) to be built within the project for its upcoming fourth generation platform and how to compute machine learning models at the edge and at the same time use these models to improve applications and services depended on reliable data-driven insights relevant to Telefonica’s business units.</p>
<p>HPE</p>	<p>A significant part of HPE Pointnext A&PS (Advisory & Professional Services) offering portfolio is still focused on Hybrid Cloud-enabled and Edge-connected solutions, with specific competence and offerings targeting cybersecurity. In particular, the edge mini-cloud orchestration system resulting from ACCORDION has a very good fit in the HPE portfolio, and will be proposed as a base for several of the above-mentioned bespoke solutions. Moreover, ACCORDION will provide key know-how acquisition to enhance HPE capabilities and methodologies towards novel Security by Design/DevSecOps tools and techniques targeted at Edge environments, especially when relying on lightweight virtualization.</p> <p>HPE expects its participation to ACCORDION, in synergy with other innovation projects like C4IIoT, to significantly boost its business opportunities in the</p>

⁶ <https://www.elevenpaths.com>

	<p>Edge/Internet of Things (IoT) domain. Furthermore, HPE will exploit innovative outcomes both in technologies like blockchain for smart contracts and in techno-economic models like the Joint revenue scheme for sparse resource/infrastructure pools, to enhance its services and reinforce its competitive advantage in several vertical sectors, starting from the telco one.</p> <p>After the end of the project, HPE will explore the opportunity to promote open communities of providers aimed at accelerating the take-up of next-generation applications, exploiting ACCORDION outcomes. The model for such communities could be Cloud28+⁷, a platform promoted and mostly developed by HPE for the cloud computing ecosystem, harnessing the <u>results of the FP7 project CONTRAIL</u>⁸.</p>
NEC	<p>NEC will use the lightweight virtualization technology (automated unikernel generation tool), to apply unikernel technology to new markets. In particular, NEC has an existing and growing portfolio in the area of IoT platforms which would benefit from the unikernel systems that this project will develop. Another likely target is NEC's line of edge-based cloud computing services and platforms and its line of cloud products and services.</p>
BSOFT	<p>BlueSoft expects its "Starboost" product to be strongly enhanced by ACCORDION with an opportunity for the hybrid approach for application orchestration - in the cloud and on-premise. This might bring additional benefits to our offer since many of the customers still have their own IT infrastructure up and running. Even though there is a trend to move towards the cloud services, customers would like to interplay between on-premise and cloud infrastructure with the priority to the first to fully utilize them and take the latter only when the top up is needed. Moreover, strong focus on the latency minimization and maximization of availability, reliability, security and performance at the various sites, will be specifically beneficial for the sectors such as fintech and telecommunication which are strategic businesses of BSOFT.</p>
OVR	<p>The OVR VR software system has been the first-to-market psychomotor VR surgical Training solution. OVR will adopt the ACCORDION solution to develop and promote collaborative cloud VR training applications specially formulated for mobile systems, untethered HMDs. In addition, as OVR seeks solutions to support a higher number of CCUs, the ACCORDION framework will be adopted in current and upcoming products towards enhancing the training experience and moving into larger scale virtual classrooms. Finally, the adaptation of OVR's networking layer to edge computing will optimize the current status of the cooperative mode, ensuring lower latency and higher performance on average network conditions.</p>
ORBK	<p>As mobile game development studio, ORBK plans to use ACCORDION as a support for mobile multiplayer platform. ACCORDION enables ORBK to develop real-time multiplayer games which can give potential market advantage and the possibility of expanding the business beyond single player and turn-based multiplayer games.</p>

⁷ <https://cloud28plus.com/>

⁸ <https://cordis.europa.eu/project/id/257438>

	<p>ACCORDION’s NextGen application management toolkit will shorten and facilitate deployment process which will accelerate the production loop. Full automatization of deployment will allow more frequent publishing of patches and delivering new content to already published games without having to go through a complicated and lengthy manual publishing process. In the case of the success of the first real time game created using the ACCORDION’s infrastructure, we plan, apart from creating consecutive games of this type, to use the system’s ability to create an Augmented Reality (AR) game based on the user’s geographical location.</p>
<p>PLEX</p>	<p>PLEX developed its platform TRAQUS which processes all data obtained from devices connected to a Wi-Fi network. It analyses real-time data of localization and then automatically delivers some key indicators to know customers better, to improve users experience and to increase sales, among other issues. Plexus objective in ACCORDION is the optimization of the content delivery path from cloud to low-end user devices, especially mobile devices. A typical scenario involves the generation of content at a centralized infrastructure and its streaming to the individual clients based on their own feedback/input. Thanks to ACCORDION, own current localization products by PLEXUS will become more sophisticated through AI techniques and the use of edge computing capacities. They will be able to offer different outputs almost in real time. This will improve decision making capacities. It will also provide the platform with information and event driven actions based on user location that will enable developers of games and applications gather position of multiples devices and have them available to develop gamification experiences. All this with very low client device requirements, high speed information and very low power consumption.</p>

2.3.1.2 NON-PROFIT PARTNERS

The academic partners of the project will exploit the project findings in ways that will help expanding their knowledge-base and enabling them to remain at the forefront of research in ICT, cloud computing, machine learning, distributed systems and use research findings for further applications and recommendations in different industrial domains. Their exploitation may be summarized as follows:

- Enhancing teaching scope and quality by introducing new findings and technologies into the curriculum, thereby delivering well-trained data professionals and software engineers, which are urgently needed in industry.
- Offer professional training on related solutions and relevant use cases.
- Present project results to students, university staff and the research community by means of seminars, tutorials, as well as renowned conferences and events, including presentations jointly with industry partners, thereby increasing awareness and adoption of ACCORDION results.
- Identify future joint research opportunities based on the project results and lessons learned from ACCORDION.
- Improved positioning for future and enhanced opportunities for cooperation with industrial as well as other research partners.

- Supervision of PhD students on domain areas related to the project, thereby delivering highly qualified software engineers with background in advanced ICT technologies and creative industries.
- Stimulate spin off projects from research to industry

Furthermore, the following table provides more concrete examples of ACCORDION outputs that academic partners actively participate in and are interested in seeking their exploitation potential.

Table 3 - Exploitation plans per partner - Academic Partners

Academic Partner	Exploitation plan
AALTO	AALTO is interested in exploiting together with other ACCORDION members the “AI-augmented edge/cloud middleware” and “NextGen application management toolkit” (see below for details).
CNR	CNR will examine potential joint exploitation schemes for Edge mini-cloud orchestration system (see below for details) and AI-augmented edge/cloud middleware.
TUB	TUB is interested in a joint exploitation toolkit with other ACCORDION member to develop a QoE monitoring tool for ACCORDION applications

2.3.2 Collective exploitation plan

Unlike individual exploitation plans given in Section 2.3.1, this section lays down the foundation for a successful collective exploitation of ACCORDION results.

The following table provides a preliminary intention of the ACCORDION members to take advantage of synergies and transform their assets (including know-how) into “systems” that meet the requirements of the targeted customer groups.

Table 4 - Collective exploitation plans

System name	System description	Partners involved	Target market	Time-to-market
ACCORDION platform	The full-blown ACCORDION platform	All technical partners	Gamers	1 year after project end
Edge mini-cloud orchestration system	An orchestration system for pooling resources and abstracting, exposing elasticity properties through a standard-based (e.g. OCCl) API. This	CNR, HPE, NEC	OpenStack, CloudStack and Kubernetes communities	1 year after project end

	is linked to OpenStack, CloudStack and Kubernetes communities			
AI-augmented edge/cloud middleware	A middleware enhanced with AI-capacity to make decisions about maintaining a robust edge/cloud continuum	CNR, AALTO, TID	Cloud providers, MEC communities, OpenEdge initiative and telcos	1 year after project end
NextGen application management toolkit	A toolkit to facilitate the underlying complexity of deploying NextGen applications on top of a volatile compute and network continuum	AALTO, BSOFT, ICCS	NextGen app developers and cloud adopter communities	1 year after project end
QoE monitoring tool	A toolkit to measure the quality of experience of NextGen applications	TUB, OVR, PLEX, ORBK	Network and Service providers	2 years after the project

2.4 Planned exploitation activities

In order to implement the ACCORDION exploitation strategy described in section 2.1.2, a set of activities need to be planned well in advance in order to succeed in realising the joint and/or individual exploitation plans (as described in Section 2.3). Some of these activities should be triggered by internal business processes governed by each individual partner (especially commercial ones), while others should involve collaboration between several consortium members. The former planned activities are detailed in section 2.4.1, while the latter are outlined in section 2.4.2. These plans will streamline the process of choosing the appropriate commercialization path and make sure that consortium members will explore to the maximum extent the collaboration opportunities.

2.4.1 Individual exploitation activities

The following table presents a draft plan of events that will take place inside each consortium partner for shaping and realizing their individual exploitation plan.

Table 5 - Planned internal exploitation activities

Event Description	Departments involved	Date
Internal workshop for sharing updated insights on market	Business development department, R&D department of each partner	M10-M12

trends, customer needs and competition		
Initial Demonstrator for prospect customers	Presales, business development, Advisory services delivery	M22-M24
Final Demonstrator for prospect customers	Presales, business development, Advisory services delivery	M33-M36

2.4.2 Collective exploitation activities

The following table presents a draft plan of events that will take place involving several consortium partners for shaping and realizing their joint exploitation plan. These events are expected to be held in dedicated sessions during a number of ACCORDION plenary meetings.

Table 6 - Planned joint exploitation activities

Event Description	System involved	Partners involved	Date
First ACCORDION exploitation workshop	ACCORDION platform	Representatives of all technical partners	During a plenary meeting at beginning of Y2
Second ACCORDION exploitation workshop	ACCORDION platform	Representatives of all technical partners	During a plenary meeting at beginning of Y3
Third ACCORDION exploitation workshop	ACCORDION platform	Representatives of all technical partners	During a plenary meeting at end of Y3

For each ACCORDION “system”, like the ones appearing on Table 4, involved partners will give a pitch answering a set of key questions, including but not limited to the following ones:

- Overview of the system
- Targeted customers and users’ benefit
- Advantages compared to competitive offerings

3 Dissemination and Communication Strategy

3.1 Objectives of the Dissemination & Communication strategy

Dissemination is understood as the public disclosure of the results of the project in any medium. It is a process of promotion and awareness-raising right from the beginning of a project. It makes research results known to various stakeholder groups in a targeted way, to enable them to use the results in their own work.

By briefly outlining the objectives of the dissemination process it is easier to map the various steps towards an effective dissemination strategy:

- Create awareness of the motivation and reasoning behind the project objectives and raise visibility for ACCORDION;
- Develop an understanding by entering discussions with the target audiences addressed by the project, ensure that the message is clearly defined, and project results are applied to their problems;
- Act towards influencing practices, products and standards, to receive feedback on the project in form of validation results or alternative approaches.

3.2 Dissemination & Communication roadmaps

3.2.1 Why Dissemination & Communication are not the same

Although at first glance these two concepts seem identical, they are not. The dissemination concerns the transfer of information between those directly or indirectly involved in the work of parties, including the broader scientific community that is interested in state-of-the-art approaches to existing challenges, as well as new issues that will emerge from ACCORDION work. Communication is more about presenting the result or parts of it to end users, the media and third parties of legal or similar interest. Figure 3 below reflects the above statement by making a clear distinction between exploitation level, dissemination level and communication level.

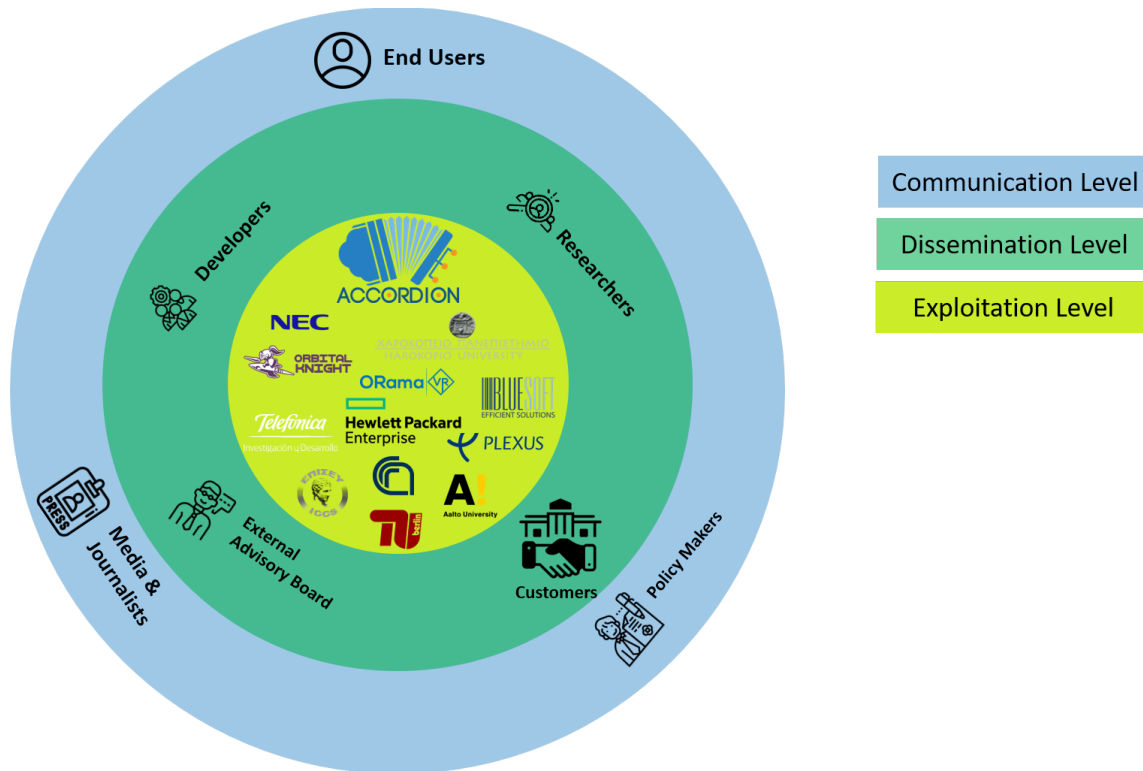


Figure 3 – The boundaries of exploitation, dissemination and communication

3.2.2 Dissemination roadmap

The following table outlines the roadmap for dissemination strategy, where activities detail the message that is to be conveyed, assets refer to the format of the dissemination activity output, channels specify the means used for impact creation, target groups describe the audience that should be targeted and delivery date is the time window that the dissemination activities will be taking place.

Table 7 - Dissemination roadmap

Activity	Asset	Channel	Target Group	Delivery Date
Describe and evaluate ACCORDION concepts, models and tools	Public ACCORDION Deliverables	ACCORDION website and social media	Researchers, Developers	M1-M36 as soon as a deliverable is submitted to EC portal

Announce advances to state-of-the-art technologies	ACCORDION papers and posters	ACCORDION website and social media	Researchers	M1-M36 as soon as a research paper is accepted to a scientific venue
Announce benefits of ACCORDION technologies	ACCORDION papers and posters	ACCORDION website and social media	Researchers	M1-M36 as soon as a research paper is accepted to a scientific venue

3.2.3 Communication roadmap

The following table outlines the planned roadmap for communication strategy, by following a similar structure as in the case of dissemination.

Table 8 - Communication roadmap

Activity	Asset	Channel	Target Group	Delivery Date
Provide a high-level description of ACCORDION concepts and technologies	Newsletter motivating the need for ACCORDION platform and/or benefits obtained while using it	ACCORDION website, social media and mailing list	Media and Journalists, Policy makers, Service providers, End-users	M1-M36
Provide a high-level description of ACCORDION concepts and technologies	Animated video motivating the need for ACCORDION platform	YouTube and other social media	Media and Journalists, Policy makers, Service providers, End-users	M1-M10
Announce the availability of ACCORDION minimum viable product	Newsletter attracting potential pilot users	ACCORDION website and social media	Gaming service providers and Gamers, Trainers and Trainees, Content providers and multimedia consumers on mobile devices	M18

Announce the availability of ACCORDION final release	Newsletter attracting potential pilot users	ACCORDION website and social media	Gaming service providers and Gamers, Trainers and Trainees, Content providers and multimedia consumers on mobile devices	M30
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3.3 Roles & responsibilities

While all partners will be actively contributing to the project institutional dissemination and communication activities (e.g., cooperating to write scientific publications, deliver events (e.g. ICT 2021), produce collaterals), different roles and responsibilities have been assigned to them based on their market positioning. These roles and responsibilities are outlined in the following table.

Table 9 – Partners’ roles and responsibilities with respect to the dissemination and communication roadmaps

ACCORDION member(s)	Roles and responsibilities regarding dissemination and communication
TID	Infrastructure owners are key stakeholders in the value chain as they will be providing the pool of infrastructure and resources for ACCORDION. TID, HPE and NEC will seek strategic partnerships for future operationalization and investigate the conditions under which different stakeholders, ranging from telecom, public and private cloud as well as IoT providers, cloud service providers and local infrastructure owners will form a federation.
HPE	
NEC	
BSOFT	BSOFT, OVR, ORBK and PLEX will leverage connections to international group companies (e.g., Orange Group), business partners outside of the project, key industry players and tech influencers (Charlie Fink/Forbes magazine, Peter Rubin/wired magazine) to present project results and create awareness and enhance the opportunities for potential business collaborations. Moreover, participation in fairs, exhibitions and gatherings of decision makers will create the opportunity for one-on-one, bilateral communication with key decision makers. Activities will include creation of links to other relevant projects at international scale, and demonstration of results in industry-related fairs, such as GDC, Unite by Unity Technologies, Oculus Connect by Facebook, VFX Festival, Mobile World Congress, targeted press releases and articles in thematic magazines.
OVR	
ORBK	
PLEX	
ICCS	Scientific communities can be effectively reached by the Consortium’s prestigious research and academic organizations. The ultimate goal of scientific dissemination is to raise awareness of ACCORDION scientific and beyond the state-of-the-art achievements. Scientific dissemination will be conducted toward prestigious research and academic organizations, well-established scientific conferences and academic presentations, scientific journals, committees, internet Fora and other academic/scientific groups in the fields related to the ACCORDION work. Scientific

	dissemination activities will be led by ICCS with contribution from the rest non-commercial partners (HUA, AALTO, CNR, TUB).
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3.4 Data Management Plan

Building on the FAIR (findable, accessible, interoperable, re-usable) principles of Open Data, the Data Management Plan (DMP) contained in D1.3⁹ outlines the type of data and datasets generated by the project and used for scientific publication and dissemination. ACCORDION will generate a range of different classes of datasets with different characteristics in terms of purposes, sources, and general constraints. For each dataset, several features are considered, including the origin of data (either *primary*, i.e. generated with the project, or *publicly available*, i.e. available on external resources), its format (i.e. JSON), and the relevance to the particular project's Work Packages (WPs).

The DMP also points out the policies that can be applied to different datasets to make it rather openly accessible or justify the restricted access. The DMP considers the constraints on the data, in terms of features such as privacy and anonymization, and the processes for preserving and curating data and the necessary related metadata. All personal data that can be collected during the project will be processed, stored and used only anonymously. The individuals will be comprehensively informed about the intent to use the information collected from them. Moreover, in certain situations, they will also be asked for an approval to use their data for scientific purposes in form of a written consent.

Currently, only a subset of the possible dataset of ACCORDION are listed. In particular, until now the following types of datasets have been identified:

Monitoring datasets: they are collected during the monitoring of applications, resources and end-user devices

Training datasets: they contain both data from guided interviews and user collected data during training phase of the project use cases

QoE (Quality of Experience) survey dataset: it contains data gathered from questionnaires compiled by users according to their experience against specific interactive applications

The datasets that will be made open access is still a discussion point within the consortium. Similarly, no long-term preserving actions are defined since, at the moment, there is still no clear indication on the final dimensions of the datasets. However, it is worth considering that the current version of the DMP is a partial document, which will be evolving during the progress of the project. In case additional datasets appear or significant policies about open access and long-term preservation are defined, the DMP will be changed accordingly.

⁹ ACCORDION consortium, Deliverable D1.3 "Data Management Plan", August 2020

In the DMP we also foresee that some portion of the aforementioned data can be published in an aggregate and summarized form as support of scientific publications within the project, as well as for further research outside the project scope, in particular the monitoring datasets, with the exclusion of the end-user one that contains sensible data for the actual EU regulations. For these datasets the steps taken to ensure internal sharing between partners of the project are just the first step of a FAIR policy implementation.

4 Means & activities to raise Awareness of ACCORDION

This section introduces the set of tools, material and activities that will implement the ACCORDION dissemination and communication plan.

4.1 Dissemination and Communication Toolkit

Communication and branding are essential to enhance visibility and awareness of a project and business in general. A visual identity has been developed for the project and a first ACCORDION dissemination and communication toolkit has been designed and will be updated, where necessary, at key milestones:

- **Project logo:** needed to establish the visual identity of the project, to appear on all project presentations, online videos, web pages, communication materials, etc.
- **Project Presentation:** a public, high-level presentation of the project's aims and objectives.
- **Project Website:** the web face of the project, where stakeholders can find information about the project, publications, news, networking events. The web site is designed following standard Web technology, including social sharing and bookmarking, news and blog, tagging.

Social media presence: Twitter, Facebook and LinkedIn accounts have been set up. These communication means are promoted through the more traditional channels (e.g. leaflet, web site, presentations, posters) and, conversely, social media will be used to promote actively the other communication tools, e.g. website, publications, deliverables, software releases, press releases, blog posts, and other news.

4.1.1 Project logo

The project logo is needed to establish the visual identity of the project. It will appear on all project presentations, online videos, web pages, printable material, etc.

The design concept of the ACCORDION logo plays on the name of the project, representing a stylized accordion which has a cloud on the left side and a symbol of computer network on the right side that put together form the stylized representation of cloud computing.



Figure 3: The ACCORDION logo

The logo:

- contains only flat colours, lively but not garish to maximize its legibility and impact.

- the text with the name ACCORDION has been personalized introducing two orange bullets.
- is designed in vector format, thus it is scalable;

Colours are important ingredient of the graphic identity and can have also a useful function: they allow to segment and organize the content. In the website and in the other communication products, they help to organize the information and ease the legibility of a documents. Figure 4 presents the selected colour scheme of the ACCORDION logo.

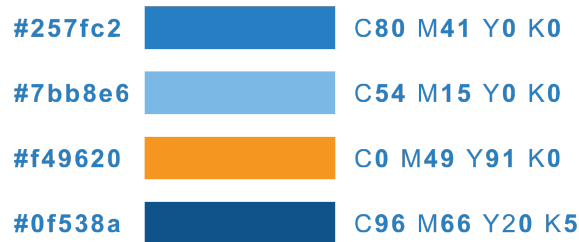


Figure 4: Colour scheme of the ACCORDION logo

Typography: the font is *Code Bold* slightly modified to fit with the idea of graphic designed for ACCORDION. It is sans serif and linear to give a strong and solid image and at the same time is modern and light.

4.1.2 Project Website

The consortium has set up the project website and will maintain it, both throughout the project lifetime as well as for at least a period of two years after the project end. The website will be a powerful tool for boosting information flow between all entities involved. The website will be referred to in all ACCORDION public documents and presentations. Easy and convenient content management is provided making use of the open source CMS (content management software) Wordpress.

The web site is designed following standard Web technology, social sharing and bookmarking, news and blog, tagging, and a contacts section.

The main pages of the Website are:

- Home: represents the welcome page and contain the project description and an overview of the consortium;
- The project: it contains a list and description of the WPs;
- Consortium: it contains a short description of the consortium partners;
- Documents: it contains the publications, deliverables, newsletters and printable communication material;
- Events: list the project events such as conferences, workshops, info days, etc.

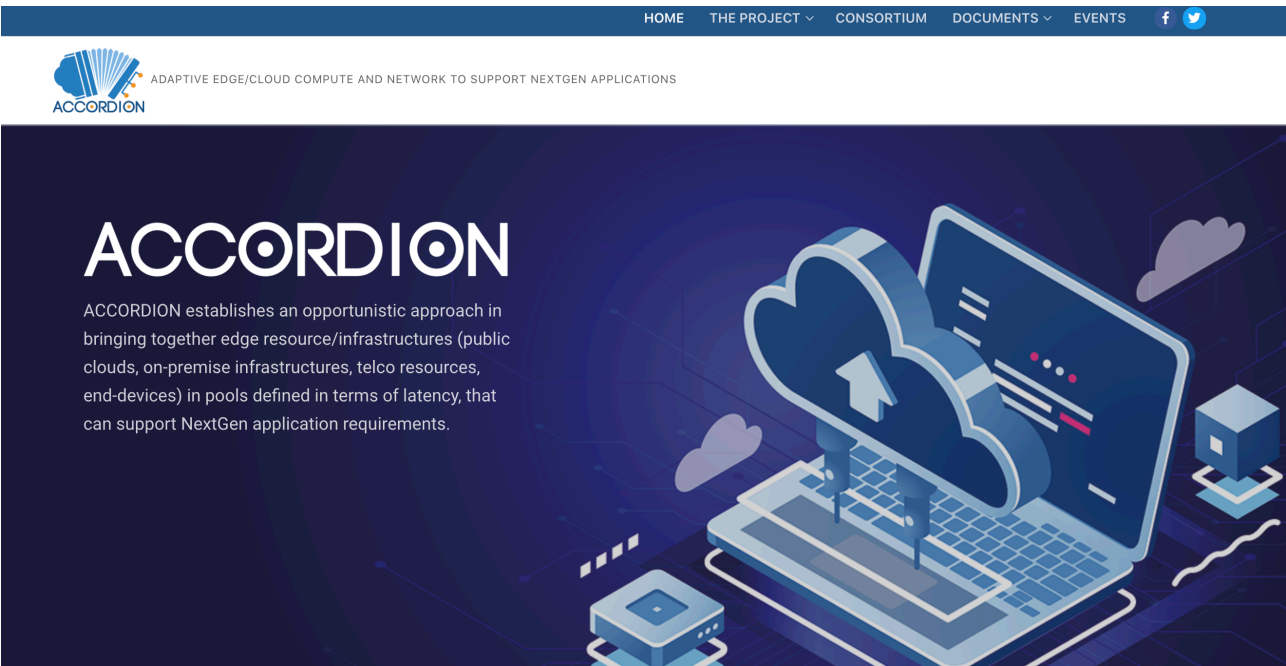


Figure 5: A screenshot of ACCORDION project website

4.1.3 Project Newsletter

ACCORDION will produce a newsletters/magazine, designed with a desktop publishing software. The newsletters/magazine will be in pdf format, therefore suitable both for online and offline communication and dissemination activities. It will be published twice a year and will contain a summary of the latest news about the project, as well as the latest and most interesting scientific publications related to the project and a section with the project events. The first issue is planned for September 2020.

An Editorial Board and an Editorial Secretariat of the newsletter have been established in order to manage the contents and the publication of the issues. All partners will contribute to the newsletter, writing articles in layman language suitable for a general public about:

- Latest publications
- Project events
- Events where Accordion is presented (workshops, conferences, etc.)
- Other interesting activities related to the project

The newsletter/magazine will be promoted on the social media channels and website of the project and will be also disseminated through specific mailing lists.

4.1.4 Social Media accounts

Social media accounts are a major instrument for recruiting interested parties and for continuous informal communication with stakeholders and target groups that are active on social media.

The project has a strong social media presence with a Twitter account, a Facebook page and a LinkedIn profile. All the partners ensure that the project has active social media engagement. Social media are used also to actively promote the project events, new publications, deliverables, software releases, press releases, blog posts, and other related news.

4.1.4.1 TWITTER ACCOUNT

A Twitter account @accordion_h2020 has been registered since the beginning of the project and personalized with the project’s graphic elements. The ACCORDION twitter page can be found on the following address: https://twitter.com/accordion_h2020



Figure 6: A screenshot of ACCORDION homepage at twitter

4.1.4.2 LINKEDIN ACCOUNT

A LinkedIn account¹⁰ has been registered since the beginning of the project and personalized with the project’s graphic elements:

¹⁰ <https://www.linkedin.com/company/accordion-h2020/>

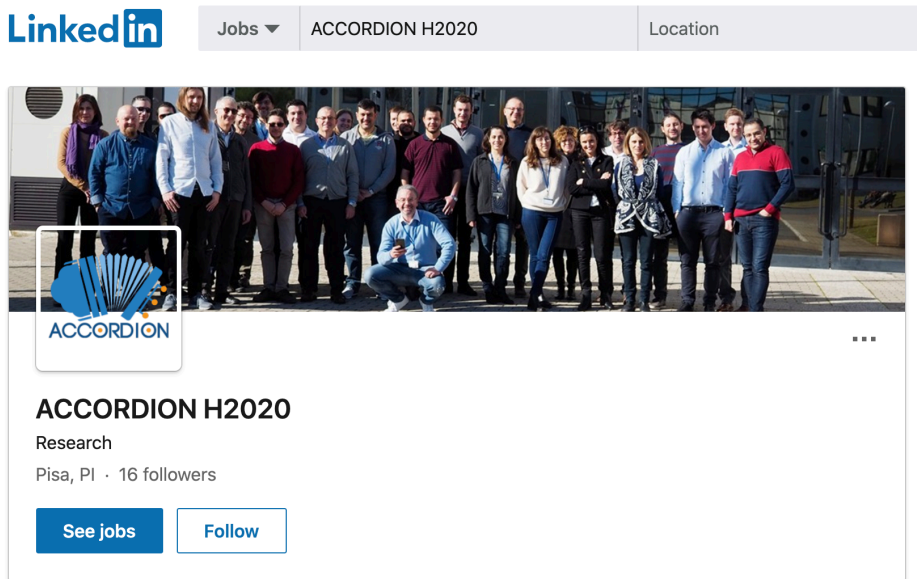


Figure 7: A screenshot of ACCORDION homepage at LinkedIn

4.1.4.3 FACEBOOK

A Facebook account has been registered since the beginning of the project and personalized with the project’s graphic elements:

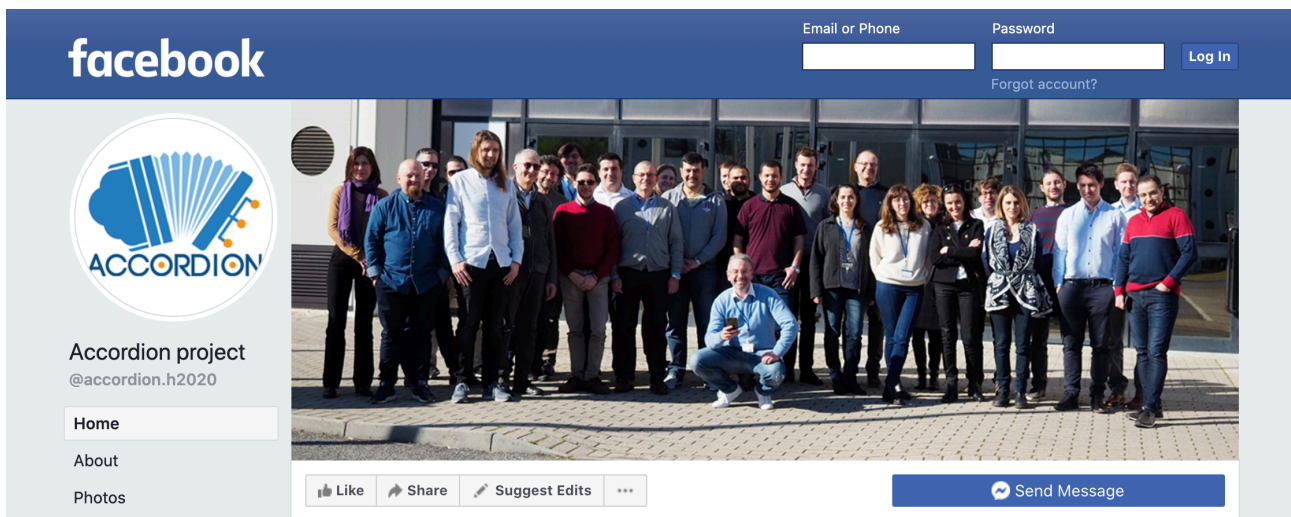


Figure 8: A screenshot of ACCORDION homepage at Facebook

4.1.4.4 YOUTUBE CHANNEL

Professional videos of different length of duration will be developed and made available via ACCORDION Youtube channel. We plan to have different typologies of videos:

- a technical video that focus on the technical advancements of the ACCORDION methodology and approach, targeting the technical and business community (duration approx. 5 min.);
- video interviews that tell in layman language the most interesting publications within the project (duration approx. 3 min.);
- webinars that focus on different scientific and technical topics (duration approx. 45 min. / 1 hour).

4.1.5 Printed Material

A set of printable and printed material will be designed starting from September 2020. In fact, the Consortium, due to the impossibility to travel and participate to events (such as conferences, workshops, etc) in presence, due to Covid19 pandemic restrictions, focused, in this first period of the project, on the online communication (social media and website).

In detail, a brochure, a roll-up banner and a poster will be designed to present the project.

4.1.6 Project presentation

A Power Point presentation of ACCORDION has been prepared, following the corporate image of the project. The presentation includes:

- a general overview of the ACCORDION consortium;
- the general goals of the project;
- an overview of our stakeholders.

The presentation is continuously reviewed and updated through time, for supporting the project activities.

4.2 Planned Dissemination and Communication Activities

This section includes key dissemination and communication events that will be targeted by ACCORDION members.

4.2.1 Publications

4.2.1.1 SCIENTIFIC PUBLICATIONS

All publication venues will be carefully selected based on their scientific excellence and impact privileging where possible open access publishing.

Table 10 – Planned scientific publications

Journal/ Conference / Workshop	Type (Dissemination/Communication)	Partner(s)
--------------------------------	---------------------------------------	------------

International Conference on Cloud Computing and Internet of Things (CCIOT) – for 2021	Dissemination	HPE with other partners
ICIN 2021 - 24th Conference on Innovation in Clouds, Internet and Networks	Dissemination	HPE with other partners
Hellenic Conference on Artificial Intelligence (SETN)	Dissemination	ICCS with other partners
GECON - Conference on the Economics of Grids, Clouds, Systems, and Services	Dissemination	ICCS, HUA together with other partners
ACM SIGGRAPH	Dissemination	OVR with other partners
Computer Graphics International (CGI)	Dissemination	OVR with other partners
IEEE Journal on Selected Areas in Communication (JSAC)	Dissemination	AALTO with other partners
IEEE Transactions on Wireless Communications (TWC)	Dissemination	AALTO with other partners
IEEE Trans. On Multimedia	Dissemination	TUB with other partners
IEEE Trans. on Mobile Computing	Dissemination	Academic partners
IEEE Trans. on Communications	Dissemination	Academic partners
IEEE Trans. on Cloud Computing	Dissemination	Academic partners
Journal of Cloud Computing: Advances, Systems and Applications	Dissemination	Academic partners
Elsevier Future Generation Computer Systems	Dissemination	Academic partners
Int. Conf. on Quality of Multimedia Experience	Dissemination	Academic partners
ACM symposium on Cloud computing	Dissemination	Academic partners

IEEE International Conference on Computer Communications (INFOCOM)	Dissemination	Academic partners, TID
IEEE International Conference on Communications (ICC)	Dissemination	TUB with other partners
IEEE Global Communications (GLOBECOM) Conference	Dissemination	Academic partners
EUCNC conference	Dissemination and Communication	Academic partners
International Conference on Quality of Multimedia Experience Conference	Dissemination and Communication	TUB with other partners
Multimedia Tools and Applications	Dissemination	TUB with other partners
International Conference on Learning Representations (ICLR)	Dissemination	TID with other partners
Network and Distributed System Security Symposium (NDSS)	Dissemination	TID with other partners
ACM Conference on Computer and Communications Security (CCS)	Dissemination	TID with other partners
ACM Transactions on the Web (TWEB)	Dissemination	TID with other partners

4.2.1.2 GENERAL PUBLICATIONS

Apart from publications targeting the scientific community, ACCORDION members will prepare additional material to be used in events, newsletters, magazines and newspapers that attract a wide range of audiences (see Table 11, below).

Table 11 – Planned general publications

Venue	Type (Dissemination/Communication)	Partner(s)
ICT 2021	Dissemination	HPE with other partners
ISTI News	Dissemination	CNR with other partners

ERCIM News	Dissemination	CNR with other partners
Newspapers	Communication	CNR with other partners

4.2.2 Info Days

ACCORDION will organize a set of info days for the research community, potential technology end-users and the standardization communities.

4.2.2.1 ACADEMIC/SCIENTIFIC INFO DAY

The scientific/academic event will aim to raise awareness of the ACCORDION achievements beyond the state of the art. Academics/researchers from the ACCORDION technologies (at least 2 experts per technology) will be invited to interactively participate in the event and several papers will be presented. This info day will be hosted/co-located in one of the major relevant to ACCORDION scientific conferences and it will be organized at mid-way of project’s lifecycle.

ICCS will disseminate the ACCORDION outcomes in the Researchers’ Night in Athens. Researchers’ Night in Athens¹¹ is an event, in which ICCS/NTUA participates every year to demonstrate research results, set challenges, and communicate with thousands of researchers, scientists, engineers, students, stakeholders and SME.

TU Berlin will communicate the ACCORDION achievement in an event named Long night of science¹², periodically organized to show the latest research and demo to general public every year.

Also, CNR will present the ACCORDION results during BRIGHT¹³: “Brilliant Researchers Impact on Growth Health and Trust in research”, also known as “the night of researchers”. It is a yearly event in which research institutions showcase their results to a broad audience.

4.2.2.2 TECH INFO DAY

The tech event will be organized at the end of the project (during the period M30-M36 a satellite workshop co-located to a major industrial European event will be organized) to internationally disseminate project’s results and main conclusions to the stakeholders that showed interest in the project along its lifetime.

¹¹ <http://www.researchersnight.gr/root.el.aspx>

¹² <https://www.berlin.de/en/events/2096550-2842498-long-night-of-the-sciences.en.html>

¹³ <http://www.bright-toscana.it/bright/>

4.2.2.3 STANDARDIZATION INFO DAY

The standardization event will be organized in the last year of the project to disseminate project results to the relevant bodies.

4.2.3 Standardisation activities

- Review and monitor evolution of ISO/IEC CD 27034-4, to begin evaluating possible synergies with ACCORDION approach on security-by-design.
- Monitor the standardization work of ETSI MEC-ISG to check the overall matching of the ACCORDION solution with the Multi-access Edge Computing (MEC) standards produced by ETSI.

4.2.4 Collaboration activities

ACCORDION members will be exchanging information and experiences with other relevant projects through clustering activities with other EC-ICT community members. Whenever possible and with the aim to raise awareness regarding project's objectives and results, and trigger collaborations which will enable ACCORDION to exploit synergies with projects sharing similar or complementary goals.

4.2.4.1 CLUSTER ACTIVITIES

ACCORDION is a proud member of the EC Cluster on Future Cloud. In such context the project contributes with its peculiar perspective on Cloud/Edge Federations for supporting next generation application. With its participation to the cluster, ACCORDION is highlighting how next generation application could benefit from specific features that can be provided through an ad-hoc designed Cloud/Edge Federation.

4.2.4.2 LIAISON ACTIVITIES

ACCORDION is a member of **H-CLOUD**¹⁴ Coordination and Support Action (CSA). H-CLOUD is aimed at leading coordination and support activities for the consolidation and growth of the European Cloud Computing research community. H-CLOUD foster the collaboration of innovators, policy makers, cloud computing research, industry and users into an open, forum. H-CLOUD will also lead the definition of the Strategic Innovation and Research Agenda for Cloud Computing that will provide recommendations and strategies to guide the future of European Cloud services and their market regulations. This will result in the creation of a comprehensive knowledge base including an online catalogue of stakeholders, initiatives, projects, businesses, policies, success stories and best practices that will be made accessible to all H-CLOUD FORUM participants. From the perspective of ACCORDION, the participation to H-CLOUD has a twofold (expected) impact. On the one hand it can ease the dissemination and communication of ACCORDION vision and let it

¹⁴ <https://www.h-cloud.eu/>

impact the European future strategy, on the other hand, ACCORDION can be positively influenced by the innovations and technologies possibly contributed and communicated by other members of the CSA.

ACCORDION is a member of **HiPEAC**¹⁵. HiPEAC (High Performance Embedded Architecture and Compilation) is the premier focal point for networking, dissemination, training, and collaboration activities in Europe for researchers, industry, and policy related to computing systems. Today, its network, the biggest of its kind in Europe, numbers over 2,000 specialists. HiPEAC's mission is to advance computer architecture and computing systems research and development as a discipline in Europe. The participation of ACCORDION is mostly related with the possible exploitation of innovative architectures, especially for the edge resources.

ACCORDION at the time this deliverable is being written is negotiating its participation to **Industrial Internet Consortium**. This possibility is still under verification. The participation of ACCORDION to such a consortium is motivated as IIC is now including the OpenFog consortium, which topics of focus are particularly relevant for ACCORDION.

¹⁵ <https://www.hipeac.net/>

5 Monitoring - KPI's

5.1 Key Performance Indicators

The following table provides a list of Key Performance Indicators (KPIs) and respective target values for dissemination and communication activities, assuming that the effects of COVID-19 on future dissemination and communication events will be less disruptive.

	Tool	Target Audience	Success Indicators
Online	ACCORDION Website	All	> 5000 access per year > 300 downloads
	ACCORDION Videos		> 10
	ACCORDION on Social Media		> 50 tweets/ month
	ACCORDION e-newsletters		> 1000 recipients
Non-Electronic	Press Echoes (From all over Europe)	All	> 10
	Journal Publications (Intl. Referred Journals)	Scientific Community	8
	Articles in printed and/or online form in magazines, newspapers etc	All	25
Interactive	ACCORDION participation in conferences and other events	Scientific community, vertical industries	> 20
	Organization of ACCORDION open events, info days	Scientific community, tech-providers, policy makers	> 2
	Co-operation with other initiatives, clusters	Scientific community, Vertical industries, policy makers	> 5
	Interaction with standardization groups	Scientific community, policy makers	> 4

	Participation in EU commission’s consultation and other worldwide regulatory in the field of interest	Scientific community, policy makers	> 4
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5.2 Means to measure progress

A custom impact monitoring tool has been implemented in Microsoft Excel that allows partners to include any activity that can be considered as communication, dissemination or exploitation. In particular, the following types of activities can be specified:

- Journal publications
- Conference publications
- Other scientific publications
- Non-scientific publications
- Scientific events organised
- Other events organised
- Conferences attended
- Workshops attended
- Other events attended
- Social media
- Videos
- Press releases
- Exhibitions
- Distributed flyers
- Training sessions
- Pitch events
- Liaison activities

- Standardization activities
- Other

Furthermore, third-party analytics platforms (e.g., from Google, Twitter, etc) will be used for collecting insights and numeric figures on the downloads from the website, retweets, number of followers, etc. These statistics will be continuously monitored and corrective actions will be taken as needed

6 Conclusions

ACCORDION is still at its incunabula and therefore this document presents the strategy for the ACCORDION dissemination, communication and exploitation as initially planned. While exploitation of ACCORDION outcomes is the main motivation for commercial partners, dissemination and communication is the basis of a widespread information strategy providing an overall picture of the project and aiming at the rise of awareness throughout its lifecycle and beyond.

This report outlines the exploitation strategy, the three phases and the associated activities that will allow the consortium members to identify candidate opportunities and address these by seeking ways to align each one's business objectives and plans.

At the same time, this deliverable intends to serve as a guide for all ACCORDION consortium members providing the necessary practices for an effective dissemination in terms of teamwork. In addition, this document is itself an asset of internal dissemination among members of the consortium, providing them with knowledge of each member's contribution to dissemination assets and actions.

After having outlined the initial dissemination strategy plan of ACCORDION, fulfilled actions are summarized along with assets and activities that are planned, developed, and deployed within the first year of the project. Based on the pointed objectives for dissemination and all generic dissemination activities, ACCORDION consortium will use a variety of dissemination assets to reach the variety of audiences that have been portrayed in this document.

Finally, considering the fact that any dissemination in itself is dynamic as it is related to the project's partial developments and outcomes, dissemination assets will be continuously monitored and updated (frequent adjustments are expected) with respect to project's objectives and KPIs.