SUPERFLUIDITY

A SUPER-FLUID, CLOUD-NATIVE, CONVERGED EDGE SYSTEM

Research and Innovation Action GA 671566

DELIVERABLE I.8.1:

COMMUNICATION AND DISSEMINATION PLAN

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Abstract:	This deliverable defines the dissemination and communication plan with clear guidelines for the dissemination activities including all operational elements of the dissemination. The document explains the strategy underlying the planned activities. It include standardisation activities and Data Management Plan
Keyword List:	Communication, Dissemination, Standardisation, Data Management Plan

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SUPERFLUIDITY DICTIONARY	
TERM	DEFINITION

Table 1: SUPERFLUIDITY Dictionary.

1 Introduction

1.1 Deliverable Rationale

Deliverable D8.1, the Communication and Dissemination Plan, is addressed to plan, specify and report the activities related to the external communication and dissemination of project results. In order to raise awareness of the techniques and tools developed by SUPERFLUIDITY these findings will be reported to a wide range of targets from academia through to industry.

The dissemination plan is meant to be a reference guide for consortium management in relation to dissemination of the project activities. The objectives of dissemination as specified by SUPERFLUIDITY project have defined the related strategy aimed to guarantee proper diffusion of knowledge and project results and secure maximum impact.

This deliverable will be focused on the definition of a communication strategy shared and agreed within the Consortium by focusing on the following stages: initial setup of the plan, processes and procedures, targeted channels and media, strategy and frequency, checkpoints and measurement of the results. The definition of a communication strategy at an early stage of the project is needed for helping partners and the consortium as a whole in addressing and maximising effort in this field paving the way to the achievement of consistent information results. An equally important reason is that a sound communication strategy supports further activities related to the stakeholders involved and the subsequent exploitation of the project results.

1.2 Quality Review

This Deliverable has been set up in a two-stage procedure. The first draft of D8.1 has been planned as an Internal Deliverable (delivery in M3 as I8.1) and the final version is due in M6 as D8.1. This double stage was planned in order to build a common and shared strategy and activity plan among all the partners, contributing by their own expertise and working field from early in the project. A first review of I8.1 has been planned at the end of the first stage, where all the partners have been asked to include their own specific contributions. The reviewer at the first stage is ONAPP – John Thomson.

VERSION CONTROL TABLE			
VERSION N.	PURPOSE/CHANGES	AUTHOR	DATE
0.1	Initial Draft	CNIT – Maria Bianco	24/09/2015
0.2	Second Draft	CITRIX – George Tsolis	28/09/2015
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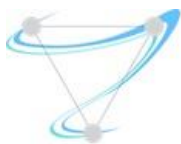
| 0.4 | Final revision/check | CNIT – Nicola Blefari Melazzi | 1/10/2015 |

Table 2: Version Control table

1.3 Executive summary

1.3.1 Deliverable description

In SUPERFLUIDITY, WP8 is responsible for dissemination and outreach activities while receiving contributions from the other work packages.

After stating the different procedures and obligations linked to dissemination, this document briefly introduces the project structure and where dissemination fits into it; and sums up the related tasks and objectives as laid down in the Grant Agreement.

The key aspects of the dissemination strategy are detailed with respect to target stakeholder groups, before detailing the proposed activities through the identified relevant channels. A detailed work plan of these activities is also included as well as a calendar of relevant external conferences that are suitable for disseminating the project results. The document, in line with the requirement for projects participating in the Open Research Data Pilot[1] in Horizon 2020, includes a Data Management Plan.

D8.1 is the first deliverable output from WP8 – Communication, Dissemination, Standardization and Exploitation. It is outlined in Annex 1 – Description of the action - Part A while Annex 1 - Part B - § 2.2.2 defines the main communication strategy at a higher level. The deliverable builds on recognition of activities and a common established strategy among the SUPERFLUIDITY partners aiming at achieving and optimising the communication activities which are necessary to disseminate and inform the different target audiences during the lifespan of the project. Dissemination and communication are in fact continuous activities supporting the proper diffusion of project results in different fields. In a horizontal framework, Dissemination and Communication will be targeted at the following audiences:

- General Public
- Scientific Community
- Industrial Targets
- Standardisation and Regulation

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[1] https://www.openaire.eu/opendatapilot

In a vertical framework, the results and achievements of SUPERFLUIDITY will be addressed to more specific fields related to the Scientific Community, Industrial Stakeholders and Standardisation and Regulation domains.

This diffusion and information activity is meant to open and pave the way for the Exploitation and Standardisation of results as they become available. During the implementation of the work, it will support also all the technical activities (Work packages from 2 to 7), by communicating and subsequently involving in specific scientific domains expertise and collaborative synergies by other research teams, individual expertise and similar projects (as outlined in the § 7- Implementation Plan).

The motivation for the Communication and Dissemination Plan is the creation of a reference document and a solid plan for the efficient knowledge dissemination among the target groups. The deliverable defines the Dissemination plan with clear guidelines for the dissemination activities including all operational elements of the dissemination. The document explains the strategy underlying the planned activities by describing the following issues:

- Initial description of conditions for dissemination and communication activities complying with Grant Agreement provisions and Consortium Agreement provisions.
- Dissemination Strategy definition describing general approach, stakeholder engagement and partners' commitment
- Dissemination and communication plan defining specific objectives, targeted results and dissemination channels adopted in order to achieve such results
- Event strategy definition as outlined in the DoA and detailed by the criterion of targeted stakeholders
- Description of dissemination tools and materials
- Implementation plan describing the monitoring procedure for Dissemination and Communication activities and their measurements in terms of success indicators. The monitoring of the dissemination activities provides evaluation of the progress and ensures that the set out objectives will be realised
- Data Management Plan providing the analysis of the main elements of the data management policy adopted with regard to all the datasets generated by the project.

It is important to emphasise that even when this deliverable is meant to be a Communication and Dissemination Plan, the activities planned for Standardization have taken into account the interest of the Industrial and Scientific Stakeholders.

1.3.2 Summary of results

The main result of the deliverable is a clear and planned description of the Dissemination and Communication activities to be realised during the implementation of the project. A clear plan is the first tool for achieving knowledge-sharing results and SUPERFLUIDITY consortium put strong

effort in acquiring different audience having different interest in project results. This deliverable will guide Partners in performing their planned activities in a harmonised and shared strategy since the very beginning of the project. Research activities and scientific challenges of SUPERFLUIDITY could monopolize effort in a strong way: defining a communication strategy at an early stage helps consortium in capitalize effort in a cost-effective way towards communication and dissemination needs.

On the other side, communicating results and activities performed to external stakeholder contribute to attract new resources in terms of external collaborations and synergies, expertise and future exploitation opportunities. The SUPERFLUIDITY communication strategy will be exercised throughout all stages of the project implementation in order to promote cross-collaboration among internal and external resources.

A practical monitoring procedure has been set up in order to check, at every stage of the project implementation, intermediate achievements and results and eventually put in place corrective actions for improving communication and dissemination.

The results of the Communication and Dissemination Plan will be analysed and presented through the Deliverables:

- D8.2 First report on Communication, Dissemination Actions, Standardization and Open Source Contribution (M12)
- D8.4 Second report on Communication, Dissemination Actions, Standardization and Open Source Contributions (M20)
- D8.6 Final Report on Communication, Dissemination Actions (M30)

2 Conditions for dissemination and exploitation

2.1 Approval Procedures

Consortium partners should inform, with sufficient advanced notice (30 days), the Management Board and WP8 Leader prior to any of the following external communications, to allow for comments or raise and clarify any concerns:

- presentations of the SUPERFLUIDITY vision or results at external events;
- newsletters, brochures, flyers, posters, web content by their own organisation presenting the SUPERFLUIDITY vision or results;
- papers or articles in scientific, technical or general publications (see § 2.4);
- written press or audio-visual media releases;
- displays at exhibitions or demonstrations by their own organisation that would include SUPERFLUIDTY results (see § 2.4).

2.2 Travelling outside of Europe

Any partner wishing to disseminate SUPERFLUIDITY results at any conference or workshop outside of Europe must have prior approval from the EC project officer for the associated costs to be eligible for funding.

In such an instance, partners should contact the Project Coordinator with details of the dissemination opportunity along with its strategic interest for the project in order to seek approval from the EC.

2.3 Management of Knowledge and Results - Intellectual Property Rights

In principle, results will be managed according to the provisions of the European Commission, and access to the results created throughout the project lifetime, will be governed by the Consortium Agreement signed by all the project partners.

"*Unless it goes against their legitimate interests, each beneficiary must - as soon as possible - 'disseminate' its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium)*"- IPR, use and dissemination issues are governed by the rules in GA § 29.1 - Obligation to disseminate results.

Furthermore, the Consortium Agreement details the provisions regarding the ownership and sharing of knowledge or project results. For these issues the CA, specifically Section 8 - Dissemination applies. This section governs the following issues:

- Ownership of results
- Joint Ownership
- Transfer of results
- Dissemination
- Contribution to standards

2.4 Publication and dissemination of Results

Publication and dissemination of results are granted with the approval of the Consortium. In this case the CA § 8.4.1 - Dissemination of Results applies in which it is stated that prior written notice of the final version of any planned publication shall be given to the other Parties at least 30 days before the planned publication submission date. Any objection to the planned publication shall be made in writing to all Parties within 25 days of receipt of the written request to submit. If no objection is made within the time limit stated above, the publication is permitted. The same article rules objections.

2.5 Access rights

In Section 9 of the Consortium Agreement - Access rights, the Partners agreed on a Positive List for Included Background available for project Implementation. The CA - Attachment 1 references Background material that has been granted Access Rights for the implementation of the Action or Exploitation of any Results. Partners may, during the Action implementation, add into Attachment 1 a reference to any of its Background not yet listed. This section rules the followings:

- Background included: "Positive List"
- General principles
- Access rights for implementation
- Access rights for exploitation
- Access rights for affiliated entities
- Additional access rights
- Inability to grant access rights due to third party rights
- Access rights for parties entering or leaving the Consortium
- Specific provisions on software

2.6 Copyrights

The illustrations, logo and graphics produced in the framework of the project, except where sourced to their original owners, are property of the Consortium and may not be used by external parties without prior approval by the Coordinator, and WP8 leader and should clearly acknowledge SUPERFLUIDITY as the source.

3 Dissemination and Communication Strategy

3.1 SUPERFLUIDITY Objectives

The overall objective of SUPERFLUIDITY is to design and implement a novel, superfluid network architecture where network services can be deployed near-instantaneously, whenever and wherever they are needed, with high performance. The overall goal is supported by eight specific objectives:

– Novel 5G data plane processing architecture – Design a flexible, open and programmable 5G data plane processing architecture and relevant APIs for network functions' convergence

– Converged 5G platform – Design, implementation, and evaluation of a unified and high performance distributed cloud platform technology for radio and network functions support and migration

– New algorithms and functions – Design, development and evaluation of algorithmic and design improvements for radio processing tasks, flow processing primitives, and service optimisation

– Ultra-fast and efficient virtualisation – Design, implementation and evaluation of beyond the state of the art quickly instantiable, low memory footprint, and high performance virtualisation technology

– Hardware adaptation and abstraction – design and development of technologies and interfaces to exploit and integrate customised hardware

– Control and provisioning framework – Extensions of existing and widespread frameworks for platform management, control, and elastic provisioning

– Security framework – Security abstractions and mechanisms to control the access to, and execution of, the network processing functions, and to prevent third-party network functions from having a negative impact on other clients' functions, the network, or the Internet at large

– Contribution to standardisation – Feed SUPERFLUIDITY results into the relevant standards bodies and communities working on de-facto standard tools

SUPERFLUIDITY's ambition is to aid mobile network operators to meet the demanding requirements of 5G while at the same time developing favourable market conditions, which will create sustainable business for all stakeholders in the value chain.

In an environment of slowing market expansion rates and declining revenues, where end users request personalised services, better performance, better user experience, businesses need to get more information about their consumers, easier and secured access to devices and greater flexibility for provisioning new services.

There is a key role to play for **Equipment providers, Service Providers and IT players** together to make this a reality by providing converged IT and Network infrastructure.

In this context, SUPERFLUIDITY helps to create a new ecosystem and the opportunity for all players to collaborate and develop new business models they can mutually benefit from.

We can sum up the main result of the project as a converged cloud-based 5G concept that will enable innovative use cases in the mobile edge, empower new business models, and reduce investment and operational costs, exerting impact as follows:

- At the macro level: consortium partners aiming at strategically placing themselves as the **driving force in the area of converged 5G service and network architectures** by becoming early adopters of SUPERFLUIDITY's system
- At the societal level: **enabling software and application providers to bring to the market innovative services and applications** exploiting information on network capabilities and conditions available at the base station without worrying about the underlying hardware; the open application space will drive the quality of the service up and the costs down
- At the operational level: i) deployment of **service and applications close to users** following their particular performance needs; ii) reduction of end-to-end latency; iii) development of **5G standards and production-quality open source code**; iv) tools for system orchestration and management and for security, integrating the SUPERFLUIDITY system into **one of the leading cloud management frameworks.**

3.2 Strategic Approach

SUPERFLUIDITY plans to address the full range of potential users and uses including research, commercial, and investment, social, environmental, policy making, setting standards, skills and educational training Specific Communication activities for different target.

SUPERFLUIDITY will ensure that all stakeholders are informed about relevant project activities. Project promotion will exploit standardised material in order to create a project brand, e.g. a project logo has already been identified (see cover page). The communication effort will strive to follow the general principles described above, and be targeted to several channels and different audiences:

- General public: project web site, websites of industrial partners, use of social media (e.g., LinkedIn group, YouTube channel, Twitter), flyers, and worldwide press releases will be used to increase the public's awareness of the project and to keep the community informed about the latest project achievements.
- Scientific community: publications in international conferences and journals, participation to and organisation of workshops and panels in major IEEE and ACM events, hands-on sessions (e.g., hackathons).

- Industrial target: visibility in industrial alliances with stands in showrooms, booths in consumer electronic shows, newsletters to partners' customer-bases, hands-on sessions (e.g., hackathons), Proof of Concept (PoC) trials, etc.
- Standardisation and regulation: participation to, monitoring of and contributions to standardisation fora are key aspects of SUPERFLUIDITY's dissemination strategy.

3.3 Stakeholder Engagement

SUPERFLUIDITY dissemination activities will ensure wide reaching impact, uptake and use of project deliverables among identified stakeholders:

- General Public
- Scientific Community
- Industrial Sector – Research and Project Managers
- Standardization and Regulation Bodies

The Stakeholders identified are listed in Table 3, below.

GENERAL PUBLIC	SCIENTIFIC COMMUNITY	INDUSTRIAL SECTOR	STANDARDIZATION & REGULATION BODIES
Users and Service Providers	Scientific Audience	Equipment providers	Open Source Communities
Education and Training Sessions for students	Proof of Concept	Service Providers	-
-	Xen developers community	IT players	-
-	Openstack community	-	-

Table 3: Stakeholders

Different approaches have been developed to achieve a multiplier effect of dissemination activities by addressing the following specific objectives:

- Realisation of education and training events;
- Involvement of Scientific audience and PoC deployment;
- Involvement of industrial sector stakeholders for further exploitation;
- General awareness on the subject of SUPERFLUIDITY and related topics using existing communities and networks.

3.4 Tasks of the Project Partners

All SUPERFLUIDITY partners are contributors to the dissemination activities under the coordination of Work Package leader CITRIX.

All project members are expected to actively contribute by:

Identifying and informing the Consortium about dissemination opportunities (e.g. Events, publications, etc.) by updating related documents in the project SVN repository on a regular basis (see § 7.1 Recording Communication Activities)

- Contributing the contents of their respective work packages to Web site News (including video), press releases, presentations, etc.;
- Using their network to support the dissemination of project information;
- Presenting the project at relevant conferences, workshops and other events;
- Helping to promote SUPERFLUIDITY workshops/events, in particular engaging key stakeholders to act as multipliers.

More specifically, the tables below (Table 4, Table 5, Table 6 and Table 7) summarise the activities planned by each one of the partner for Specific Stakeholders' group.

GENERAL PUBLIC		
SPECIFIC ACTIVITY	PARTNER	DESCRIPTION
Dissemination	ALBLF	ALBLF will showcase the SUPERFLUIDITY technologies during the Bell Labs Open Days organized once a year. ALBLF will publish description and performance result of SUPERFLUIDITY usage of technologies in its platform in top tier publications.
	ULG	ULG publishes SUPERFLUIDITY output to top tier academic conferences and journals. ULG has a long track record of publishing in such venues (several papers at ACM SIGCOMM, ACM CoNEXT, IEEE Infocom and ACM/IEEE ToN) and can thus reinforce the impact of SUPERFLUIDITY the top of networking research. Furthermore, the main ULG key player in SUPERFLUIDITY, Prof. Laurent Mathy, has a long track record of invited talks at research facilities and conferences (over 50 invited talks). Prof. Mathy holds a Visiting Professorship for Senior International Scientists of the Chinese Academy of Sciences, and is thus a regular seminar series speaker around China, providing an avenue for rapid dissemination of SUPERFLUIDITY results outside of the EU.
Collaboration with 5G-PPP	CNIT	CNIT coordinates the project participation according to the contractual commitment of the 5G-PPP.

stakeholders		
Education and Training Session	ALUIL, UPB and BGU	ALUIL, UPB and BGU will organize education and training session (including an hands-on session) on selected SUPERFLUIDITY results as part of their yearly winter school (see http://events-tce.technion.ac.il/winter-school-2015/) or as part of a separate event in Bucharest
	UPB and NEC	UPB and NEC will organise a top-quality academic workshop on areas relevant to SUPERFLUIDITY. Partners NEC and UPB have a track record of organising high profile workshops in areas relevant to SUPERFLUIDITY. NEC's Felipe Huici has co-chaired the first HotMiddlebox workshop at CoNext 2013 and will co-chair CoNext 2015, and UPB's Costin Raiciu is co-chairing the HotMiddlebox workshop at SIGCOMM in 2015.
	ULG	SUPERFLUIDITY research results will be injected into the MSc curriculum at ULG and exploited by PhD students and research staff. Industry will also benefit through the dissemination of SUPERFLUIDITY results through consulting services from ULG, joint industrial projects, as well as joint internship and joint supervision of MSc and PhD students.

Table 4: Specific Dissemination for General Public

SCIENTIFIC COMMUNITY		
SPECIFIC ACTIVITY	PARTNER	DESCRIPTION
Publications	UPB	UPB publishes SUPERFLUIDITY outputs to top tier conferences. UPB's past record of publishing in such venues (3 NSDI papers, 2 SIGCOMM papers in the past 5 years) show that SUPERFLUIDITY can make an impact at the top of networking research.
	NEC	NEC publishes SUPERFLUIDITY outputs to top tier conferences. NEC's past record of publishing in such venues (3 SIGCOMM CCR, 1 SIGCOMM, 1 CoNEXT, 1 NSDI papers in the past 5 years) show that SUPERFLUIDITY can make an impact at the top of networking research.
Proof of Concept (PoC)	CNIT	Ninux.org is a wireless network community in Italy (http://wiki.ninux.org/FrontPage), based in Rome but spread all over the country with about 300 nodes. In cooperation with CNIT, Ninux.org deployed about 20 INTEL NUC devices (http://www.intel.com/content/www/us/en/nuc/overview.html) running Linux virtual machines in home premises. In SUPERFLUIDITY, CNIT and

		Ninux.org will assess and test on a production network, with actual users, edge-cloud services (e.g. IoT, home automation, environmental monitoring, edge-NFV) by reusing and improving the already deployed INTEL NUCs and adding similar devices. Ninux.org members will cooperate on a voluntary basis assisted by CNIT personnel working in SUPERFLUIDITY. The interest of Ninux.org in participating to the project lies in the opportunity to experiment new functionality and services, which is one of its main institutional aims.
	ALBLF	ALBLF will integrate and demonstrate a real RF link by connecting to a 4G RRH via a CPRI to Ethernet box, and mixing with virtual 5G handsets. The demonstration will instantiate virtual eNB functions supporting a variety of scenarios such as: i) mixing 4G and 5G eNB; ii) supporting various services such as sensor and multimedia; iii) moving some functions dynamically between the RRH (or the box next to it) and the central computing node; iv) updating some functions on the fly in the eNB instantiation (such as the MAC scheduler to fit with the end-user service).
	ALUIL	ALUIL holds multiple PoCs with multiple operators, including Deutsche Telekom and China Mobile demonstrating vIMS (by Huawei and Alcatel-Lucent) as well as with NTT Docomo and KT Corporation on-boarding vEPC (by NEC and Alcatel-Lucent). ALUIL will complement and extend those PoCs with SUPERFLUIDITY results (e.g., performance enhancements and the ability to move service from the cloud to the remote radio head and vice versa). These enhancements would allow a shift to a second phase of performance demonstration in additional to the current functional PoCs.
	BT	BT will participate in the test and deployment of a selection of SUPERFLUIDITY use cases within the NFV PoC Framework (http://www.etsi.org/technologies-clusters/technologies/nfv/nfv-poc) in collaboration with other industrial partners, according to the referenced framework.
	CITRIX	CITRIX aims to execute at least the following PoC's, as aligned with the objectives of SUPERFLUIDITY: i) PoC on subscriber-aware service chaining, employing NSH (Network Service Header) for scalable and efficient delivery of composite network services, ii) PoC on virtualization/cloudification of EPC/GiLAN applications, interoperable with the major cloud orchestration options and aligned with NFV architecture.
	EBLINK	EBLINK will participate in the testing and evaluation of SUPERFLUIDITY results in their "EBlink Lab". This laboratory has all required equipment to test information transmission between access nodes and the remote radio head. EBLINK will further test SUPERFLUIDITY results within its partner operators' network environments together with Alcatel-Lucent platform (in order to test wireless access solutions together with fiber connectivity to deploy multi

		RRHs).
	ONAPP	ONAPP intend to trial the low resource Hypervisors within the ONAPP platform as a trial to see how performance can be improved against the most recent version of the product. If there are significant performance increases then these changes may be incorporated into the ONAPP Integrated Storage and/or Cloud products (900+ service providers / 2000+ clouds). The other area that ONAPP intend to produce a PoC in is on a high performance CDN addition to the CDN and Federated Market platform.
	PTIN	PTInS intends to transfer SUPERFLUIDITY results to its new Cloud business unit deploying the brand new data center (https://cloud.ptempresas.pt). The PoC targeted will show how to seamlessly move (virtualized) functions from the cloud data centers to the (wireless) access of the network.
	TELCARIA	TELCA will test and deploy a selection of SUPERFLUIDITY use cases thanks to their cooperation with REDIRIS (the National Research Network, NREN, in Spain).
	TID	TID will participate in the test and deployment of a selection of SUPERFLUIDITY use cases within the NFV PoC Framework (http://www.etsi.org/technologies-clusters/technologies/nfv/nfv-poc) in collaboration with other industrial partners, according to the referenced framework.
	Unified Streaming	USTR will participate in and test a selection of SUPERFLUIDITY use cases using its OTT streaming video solutions at the edge level (late transmuxing) with specific attention to the use of protection (DRM) at this level.
OpenStack Summits and Hackathons	NEC - CITRIX	NEC will co-organise, along with CITRIX, one of the official Xen hackathons, where the main Xen developers and other developers from industry come together for a few days to advance the state of Xen-related software.
	NEC	NEC commits to organize, along with other project partners, a SUPERFLUIDITY hackathon where we bring together developers from the project and from external entities (operators, SMEs, research institutions) to try out, hands-on, the software produced by the project. The aim is three-fold: (1) for the external input to provide constructive criticism; (2) as a dissemination activity; and (3) as a means to gather potential new use cases from external parties.
	RED HAT	REDHAT will present SUPERFLUIDITY solution in OpenStack conferences (once per year).

Table 5: Specific Dissemination for Scientific Community

INDUSTRIAL SECTOR		
SPECIFIC ACTIVITY	PARTNER	DESCRIPTION
Industry events and ad-hoc meetings	CNIT	Organization of the SUPERFLUIDITY workshop for discussions with policy makers, social and environmental organizations regarding project results
	ONAPP	ONAPP will present and demonstrate SUPERFLUIDITY results at several trade shows including WHD in Europe / US where the platforms can be demonstrated.
	Unified Streaming	USTR plans to demonstrate SUPERFLUIDITY results to its broad portfolio of industry partners, at tradeshows USTR participates in and specific events, e.g. ad-hoc talks USTR is invited for.
	TUD	Vodafone Chair of TUD will demonstrate SUPERFLUIDITY results to its broad portfolio of industry partners (e.g. Vodafone, Huawei, Nokia Networks). Moreover, Vodafone Chair's close relation to Vodafone R&D allows to promote the SUPERFLUIDITY concepts and achievements through Vodafone in NGMN Alliance and 3GPP.

Table 6: Specific Dissemination for Industrial Sector

STANDARDIZATION & REGULATION BODIES		
SPECIFIC ACTIVITY	PARTNER	DESCRIPTION
Open Source Communities	ALBLF	ALBLF will support relevant contributions to the Docker open source project (pull requests, commits). ALBLF will propose to organize a Docker hackathon in its premises focussing on Docker usage in wireless access (stateful relocation, access to I/O acceleration hardware, realtime preemption…). ALUBLF will contribute to the Open Air Interface Foundation relevant technologies from SUPERFLUIDITY and will propose to host a "school" session at the Open Air Interface Foundation to showcase the relevance of SUPERFLUIDITY.
	ALUIL	Open Source: incorporate resource allocation schemes into OpenStack NOVA scheduler; ii) integrate SUPERFLUIDITY's SLA-oriented orchestration into OpenStack HEAT; iii) include the SUPERFLUIDITY requirements and use cases (e.g., inclusion of vRAN) into the work items of OPNFV (ALUIL is part of the technical steering committee of OPNFV).

		Contribution to standards: i) extend OASIS TOSCA (Topology and Orchestration Specification for Cloud Applications) standard to support the description of the SLA required by the applications; ii) ETSI NFV – MANO to support the description of the SLA required by the applications.
	BT	Contribution to standards: BT will contribute to the standardisation of proposed SUPERFLUIDITY solutions both in 3GPP and ETSI NFV and MEC ISGs.
	CITRIX	Open Source Contribution: CITRIX will continue their participation to Open Daylight and OPNFV Linux Foundation projects on making de-facto standards for the applications and services of the Application Delivery Controller (ADC), as a component of the infrastructure (NFVI) layer of the NFV architecture, this contribution is mean to enable offering of advanced capabilities based on SUPERFLUIDITY results to VNFs and can provide application-layer feedback to the Orchestrator about the VNF performance, which can be used for scaling-up/scaling-down and other lifecycle management decisions. Contribution to standards: CITRIX aims to continue to contribute to the IETF SFC WG (http://datatracker.ietf.org/wg/sfc), both in the area of Generic SFC Encapsulation (such as the Network Service Header) and also in the area of Control Plane Mechanisms.
	INTEL	Open Source Contribution: i) INTEL is actively working with internal and external partner organisations on Blue Print and other options for evolving OpenStack. INTEL will push to OpenStack SUPERFLUIDITY's results on monitoring, control, QoS and other service-level requirements relevant to OpenStack projects (in particular Ceilometer and Neutron plugin); ii) INTEL is one of the main maintainers of DPDK.org, the open source Data Plane Developer Kit. INTEL plans to add SUPERFLUIDITY results to DPDK.org on issues of manageability and orchestration for services and platforms for network workload. Contribution to standards: i) OGF OCCI, the Open Cloud Computing Interface is an open, community-driven specification for remote control of cloud resources. INTEL is a founding co-chair of the OCCI Working Group. SUPERFLUIDITY will establish references and insights into meaningful representations and control requirements for infrastructure and service configurations and can serve as an API basis as well as incorporating useful output on its own roadmap; ii) ISO SC38 (SLA focus): this group is now considering vocabularies for SLAs. INTEL has prior work in machine readability, SLA monitoring and KPI mapping. SUPERFLUIDITY's use cases will provide insights and proof-points

		relevant for the standardization of vocabularies for SLAs. INTEL is actively contributing at local chapter level and will represent SUPERFLUIDITY at ISO SC38.
	NEC	Open Source Contribution: NEC commits to release part of its project code output as open source (under the original repositories, e.g., cnp.neclab.eu, KVM, XEN, DPDK.org, etc.). The parts that are deemed business relevant will be kept closed-source for exploitation purposes.
	RED HAT	Open Source Contribution: REDHAT will contribute SUPERFLUIDITY results to OpenStack (Triple-O, Ceilometer, OpenStack scheduler) and create a management framework for the RAN inside OpenStack.
	TELCARIA	Open Source Contribution: TELCA plans to contribute to the open source community by pushing SUPERFLUIDITY results to OpenDaylight (ODL) and OpenStack.
	TID	Open Source Contribution: TID will contribute SUERFLUIDITY results through its participation into the NFV OpenStack group, as well as to the recently launched OPNFV project. Contribution to standards: TID will contribute to the standardisation of proposed SUPERFLUIDITY solutions both in 3GPP and ETSI NFV and MEC ISGs. Diego López is Technical Manager of NFV ISG
	TUD	Open Source Contributions: TUD plans to integrate SUPERFLUIDITY open source software into research and prototyping platform of 5G Lab Germany (5glab.de).

Table 7: Specific Dissemination for Standardization and Regulation Bodies

4 Dissemination and Communication Plan

4.1 Targeted results

Per the Technical Annex, activities in the areas of Dissemination and Exploitation shall include:

1. **Demonstrations through PoC**s: SUPERFLUIDITY will demonstrate its results through proof-of-concept prototypes and trial activities

2. **Community development:** SUPERFLUIDITY will further push its results and develop community awareness by participating to events, such as Hackathon sessions, OpenStack summits, MWC, ONS, SDN World Congress

3. **Scientific dissemination:** SUPERFLUIDITY will target top tier research conferences and journals; partners have established presence/track record

4. **Workshops**: the consortium will organize a top-quality academic workshop on relevant areas and two workshops involving industry stakeholders

5. **"World" dissemination tours and education:** SUPERFLUIDITY partners will further disseminate results via "world" dissemination tours of invited talks

6. Communication and collaboration with **peer 5G-PPP projects** in the framework of the overall 5G-PPP program

7. **Community and public awareness:** Project will seek to increase community awareness by participating in EU-organized concertation events, by usage of social media (e.g., LinkedIn, Twitter), and through press releases (website)

4.2 Specific goals

Also per the Technical Annex, specific commitments of the projects include:

- **Dissemination and communication** of the project results via the project website, publications, press releases and media coverage

- Co-chairing of workshops, demonstrations and specialized sessions at top technical conferences

- **Open source** code releases and collaboration with major open source development communities

- Organization of **two** communication events: one **workshop** (likely as part of a top-tier conference), one **hackathon** involving external developers

- Communication activities targeting industry stakeholders, including organization of **two specific industrial workshops**

4.3 Key messages

4.3.1 Alignment with 5G-PPP

The high level objectives of the 5G Infrastructure Public Private Partnership (5G-PPP) are:

At macro level, the target impact is to keep and reinforce a strong EU industrial base in the domain of network technologies, which is seen as strategic industry worldwide. Retaining at least 35% of the global market share in Europe regarding future network equipment would be a strategic goal.

At societal level, the impact is to support an ubiquitous access to a wider spectrum of applications and services offered at lower cost, with increased resilience and continuity, with higher efficiency of resources usage (e.g. spectrum), and to reduce network energy consumption.
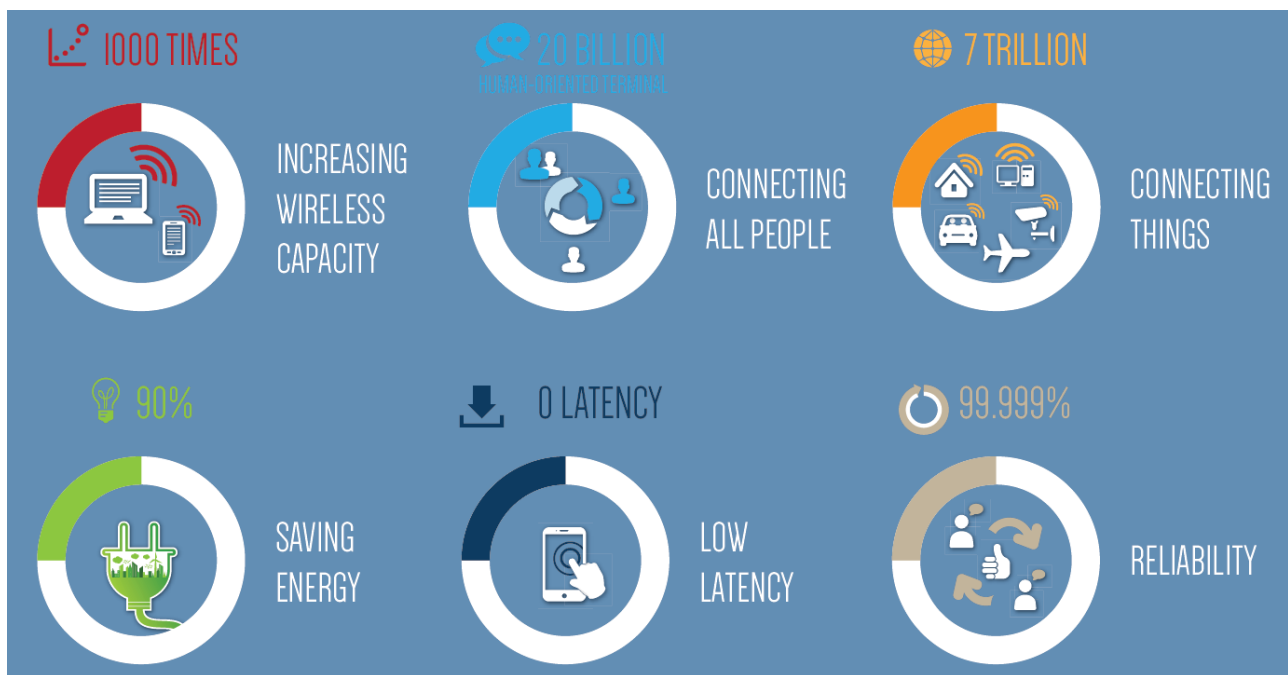

Figure 1: 5G Operational Level Targets
Courtesy: The 5G Infrastructure Public Private Partnership (5G PPP) Brochure

At operational level, following impacts are sought:

- 1000 times higher mobile data volume per geographical area.

- 10 times to 100 times higher number of connected devices.

- 10 times to 100 times higher typical user data rate.

- 10 times lower energy consumption for low power Machine type communication.

- 5 times reduced End-to-End latency (5ms for 4G-LTE).

- Ubiquitous 5G access including in low density areas.

- European industry driving the development of 5G standards, at least for the radio part, and to retain control of 5G SEP (standards essential patents), 20% as a minimum. International co-operation with countries having bold R&D initiatives in the field (Korea, Japan, US, China) may be considered on a win-win basis.

- Availability of a scalable management framework enabling deployment of novel applications, including sensor based applications, with reduction of network management opex by at least 20%. Availability of security/authentication metrics across multi domain virtualised networks.

Business-related KPIs:

- Leverage effect of EU research and innovation funding in terms of private investment in R&D for 5G systems in the order of 5 to 10 times;
- Target SME participation under this initiative commensurate with an allocation of 20% of the total public funding;
- Reach a global market share for 5G equipment & services delivered by European headquartered ICT companies at, or above, the reported 2011 level of 43% global market share in communication infrastructure.

Performance KPIs:

- Providing 1000 times higher wireless area capacity and more varied service capabilities compared to 2010;
- Reducing the average service creation time cycle from 90 hours to 90 minutes (as compared to the equivalent time cycle in 2010);
- Very dense deployments to connect over 7 trillion wireless devices serving over 7 billion people;
- Secure, reliable and dependable Internet with a "zero perceived" downtime for services provision.

Societal KPIs:

- Enabling advanced User controlled privacy;
- Reduction of energy consumption per service up to 90 % (as compared to 2010);
- European availability of a competitive industrial offer for 5G systems and technologies;
- New economically-viable services of high societal value like U-HDTV and M2M applications;
- Establishment and availability of 5G skills development curricula in partnership with the EIT.

4.3.2 Concise summary of the project

Project description

- Superfluidity in the network
    - instantiate services on-the-fly, run them anywhere in the network (core, aggregation, edge) and migrate them transparently to different locations
- Tackling today's shortcomings
    - long provisioning times
    - wasteful over-provisioning used to meet variable demand
    - reliance on rigid and cost-ineffective hardware devices
    - complexity, emerging from three forms of heterogeneity

Overall Idea

- Run network processing in a virtualised form, on-demand on third-party infrastructure located throughout the network
    - At the core in data-centers
    - At micro data-centers at PoPs in telecom networks
    - At the edge, in RANs next to base stations and at aggregation sites
- Develop technologies that allow such services to be "superfluid":
    - Fast instantiation times (in milliseconds)
    - Fast migration (in hundreds of milliseconds or less)
    - High consolidation (running thousands of services on a single server)
    - High throughput (10Gb/s and higher)

Solution description

- Solution based on
    - decomposition of network components and services into elementary/reusable primitives
    - native, converged cloud-based architecture
    - virtualisation of radio and network processing tasks
    - platform-independent abstractions, permitting reuse of network functions across heterogeneous hardware platforms while catering to the vendors' need for closed platforms/implementations
    - high performance software optimisations along with taking advantage of hardware accelerators

4.3.3 Aim of the project

Cloud properties

- **Location independence**: services can be deployed (and relocated) at various networks depending on application needs

- **Time independence**: fast deployment and relocation in tiny timescales to guarantee service continuity

- **Scale independence**: transparently scale services in a cloud-like manner, provide massive consolidation

- **Hardware independence**: the network services (i.e., software) should run on all platforms, irrespective of the underlying hardware

Main Project Goals

- **Converged architecture**: the superfluid platform will abstract the heterogeneity of (1) the underlying hardware and (2) the underlying access technologies

- **Security by design**, to automatically verify that deploying a particular virtualized service won't negatively affect the network or other services

- **Next generation virtualization**: very low instantiation/migration delays, high I/O bandwidth, tiny memory footprints for massive deployments.

- **Heterogeneous hardware acceleration**: leveraging commodity hardware such as FPGAs, GPUs, TCAMs, SoCs, etc), includes dynamic resource allocation algorithms

4.3.4 Potential impact of the project

Main impact: A converged cloud-based 5G concept that will enable innovative use cases in the mobile edge, empower new business models, and reduce investment and operational costs

Macro level: Consortium partners aiming at strategically placing themselves as the driving force in the area of converged 5G service and network architectures by becoming early adopters of SUPERFLUIDITY's system

Societal level: Enabling software and application providers to bring to the market innovative services and applications exploiting information on network capabilities and conditions available at the base station without worrying about the underlying hardware; the open application space will drive the quality of the service up and the costs down

Operational level: i) deployment of service and applications close to users following their particular performance needs; ii) reduction of end-to-end latency; iii) development of 5G standards and production-quality open source code; iv) tools for system orchestration and management and for security, integrating the SUPERFLUIDITY system into one of the leading cloud management frameworks

4.3.5 Who is involved in the project

Please refer to the partner list.

4.3.6 What are the project conferences, workshops and events

CNIT is planning to organise a Workshop at the IEEE INFOCOM 2016 Conference / http://infocom2016.ieee-infocom.org/).

4.3.7 Major developments and achievements

This will be populated in subsequent revisions.

4.3.8 New organisations coming on board

This will be populated in subsequent revisions.

4.3.9 Key milestones of the project

Milestone number	Milestone name	Due date	Means of verification
1	Project fully operational	3	Management structures and procedures, including standard formats and forms for project documentation ready. Composition of boards and teams fully defined. Technological infrastructure to support cooperative work fully operational (web server, document server, version control system for sources files, mailing lists, management & report tools, etc.). First version of the use cases. Planning of Communication, Dissemination, Standardization and Exploitation activities
2	Intermediate Requirements and Functional Analysis	6	WP2 producing intermediate Technical and Business Requirements and Functional Analysis and Decomposition for the Reuse & Sharing of Resources. Early results on System architecture
3	End of phase 1	12	First project review; first edition of the Project vision and roadmap; first annual review report; final results from WP2. Stable system architecture; intermediate results from core WP 4, 5, and 6; first

			report on communication, dissemination and open source contributions and standardization and innovation and exploitation
4	Intermediate Requirements and Functional Analysis	6	WP2 producing intermediate Technical a Business Requirements and Functional Analysis and Decomposition for the Reuse & Sharing of Resources. Early results on System architecture
5	System architecture complete	16	Completion of the System architecture
6	End of phase 2 and completion of core technical WPs (4,5,6)	24	Platform components complete, initial platform available and demoed; Communication and Dissemination reaching wider audience.
7	System integrated	28	Platform integration and prototype available.
8	End of phase 3 and of the project	30	Second project review: second edition of the Project vision and roadmap; second annual review report; final release of platform and use case code; final report on dissemination and open source contributions and standardization.

4.4 Dissemination Channels

4.4.1 SUPERFLUIDITY Web Site

The SUPERFLUIDITY website is the main promotional tool for publishing project information and research results. The following domain names have been secured and are linked to the same page:

- www.superfluidity.eu
- http://superfluidity.eu/

The web site has been realised through WordPress and the Access Press Ray Theme. A screenshot of the current view of the website is captured in Figure 1. Now the web site shows just static pages, but the Theme applied will allow in the future the switch to a more dynamic visualisation of content.

The main structure of the pages follow the scheme of the Home page: main field dedicated to Project content with a static section of the right side showing official information about the project, Coordinator Organization, Funding and Official EU Acknowledgement.

Furthermore the Web site is equipped with a web analytics service (Google Analytics) which allows to check and collect information about website traffic.
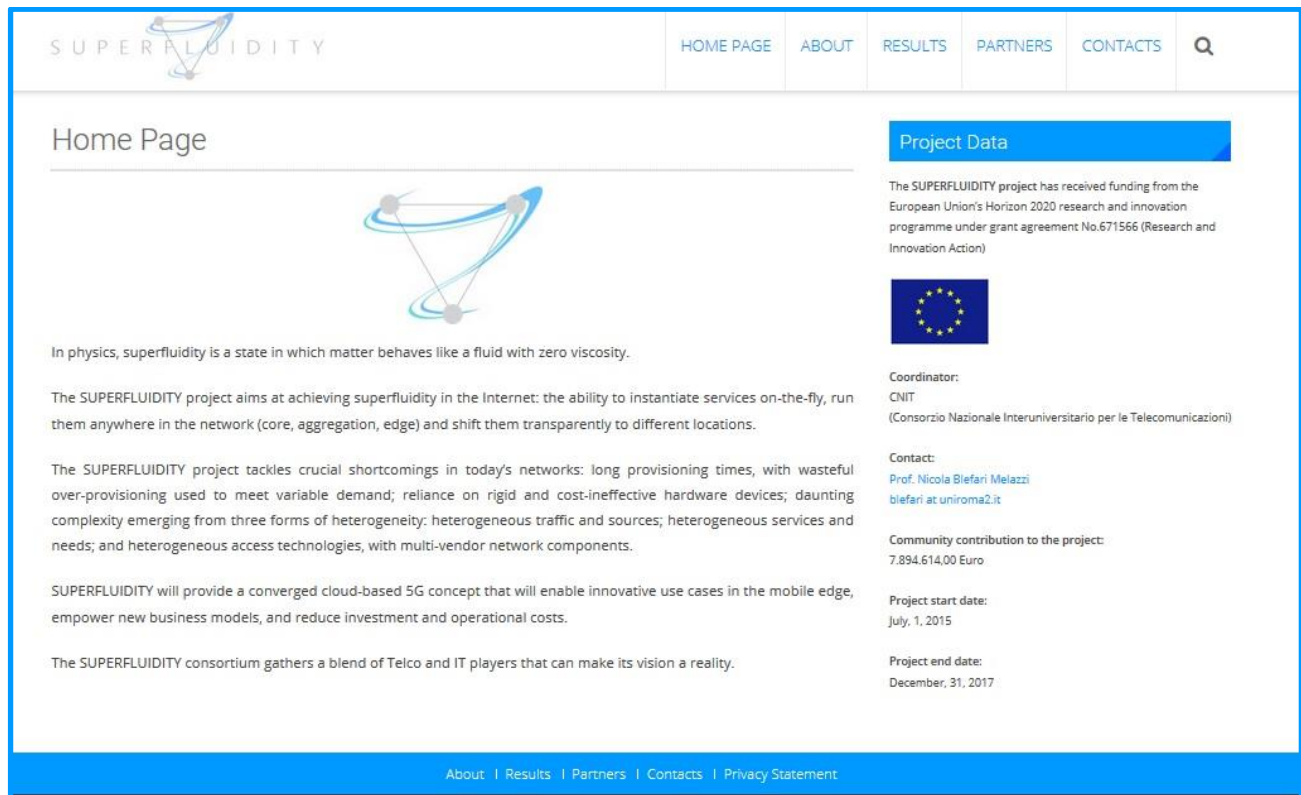

Figure 1: SUPERFLUIDITY Home page

4.4.1.1 Structure

The SUPERFLUIDITY web site is structured in the following sections:

1. **Home page** - summary describing the vision, context and audience of the SUPERFLUIDITY Project.
2. **About** - describe the main objectives of the project, expected benefits and impact, the main research activities, the current status of the project roadmap and related projects and initiatives in different sub-sections:
   a. Specific Objectives
   b. Benefit and Impact
   c. Research Description
   d. WPs Description
   e. Step by Step - shows the complete Roadmap of SUPERFLUIDITY
   f. Related Projects
3. **Results** - describes the main results of the project in several subsections:
   a. Communication
   b. Dissemination
   c. Standardization
   d. Exploitation

e. Deliverables – this sub-section is equipped with a private area in which partners and EC Officer can download Deliverables complete.

4. **News** – this section will be the main channel for dissemination of information. News, which will be published with the contribution of all the Partners, will be shareable through Social media.

5. **Partners** – this page gives access to information about the composition of the consortium and to single pages dedicated to Partners' description and Teams with links to the partners web-pages

6. **Contact** – Information about the Contact Details of the Project Coordinator, Technical Coordinator and Innovation Coordinator.

4.4.1.2 News Editorial Plan

The aforementioned "News" section represents the main channel for spreading information outside the consortium. The page is planned to be a blog where news and information can be published in a very easy and light way through WordPress platform. As already mentioned, this section will allow sharing of news through social networks, thanks to a sharing plugin that has been installed.

Keeping the news site up-to-date is essential for maintaining and increasing online traffic on the website. The Editorial plan considers that the commitment of all the partners is important in order to share information/impression on their own activity related to SUPERFLUIDITY. For such reason each Partners involved in project will share information on the following activities by writing and sharing short news items:

- Congresses, workshops and fairs attendance
- Networking activities with Organisations external to SUPERFLUIDITY Consortium in the specific topic of the project
- Presentation held, Publication and Press release realised in connection with SUPERFLUIDITY activities
- Collaboration established with expertise and projects similar to SUPERFLUIDITY's topic and exploitable synergies.
- Interesting Event, Information and Calls for the benefit of SUPERFLUIDITYs objectives

4.4.2 Social Networking

As planned in the proposal, SUPERFLUIDITY will exploit also the communication and information opportunities through social network. The planned channels are Twitter and LinkedIn.

4.4.2.1 LinkedIn Professional Network

A SUPERFLUIDITY Group page will be created on LinkedIn and all the Partners Team individuals will be invited in joining the Group. The strength of LinkedIn consists in the

possibility to reach through the network similar Expertise and suitable Organizations (both from Research and Industrial Sector) potentially interested in exploitation of results and further development of solutions.

For realizing a positive interaction among Group members, it is necessary to generate a continuous flow of information and discussions and at a very high quality level. Commitment of all the Partners (i.e. individual members of the Groups) is very crucial in order to achieve valuable results and pave the way to exploitation actions.

First of all on the LinkedIn group will be shared all the News and Information published on the SUPERFLUIDITY web site, secondly but not less important is the commitment of the consortium in contributing through initiation and following of discussions generated.

Partners can indicate to the Manager/s of the SUPERFLUIDITY LinkedIn Group contact persons to be invited and should deploy some effort in sharing and involving their own professional networks.

4.4.2.2 Twitter

Another Social Network that is planned for use in the Dissemination and Communication activities of SUPERFLUIDITY is Twitter. A specific SUPERFLUIDITY profile will be created in order to connect and disseminate information through the Official EU Channels. First of all with 5GPPP Twitter Account: @5GPPP

4.5 Academic publications and project literature

SUPERFLUIDITY will target top tier research conferences and journals (USENIX NSDI, USENIX OSDI, USENIX ATC, ACM CONEXT, ACM SIGCOMM, ACM SIGCOMM CCR, etc.). These leading venues shape future research in this area and as such provide maximum visibility for the project results. Several partners (UPBwith MPTCP, NEC with ClickOS, etc) have an established presence and a strong track record in such venues.

4.5.1 Press Release

This will be populated in subsequent revisions.

4.6 Relevant external conferences and events

An Initial list of interesting conferences is the following:

- NetWorld 2020 Workshop, 29/6-2/7/2015, collocated with EUCNC 2015, Paris, France
- WWRF 5G Huddle: Copenhagen; October 13 - October 14, 2015
- ICT 2015 Innovate, Connect, Transform: Lisbon; October 20 - October 22. 2015
- 2nd EAI International Conference on 5G for Ubiquitous Connectivity: Guildford UK; November 25 - November 27, 2015
- ACM CoNEXT 2015 - Sigcomm: Heidelberg; December 1 - December 4, 2015
- IEEE Globecom 2015: San Diego CA; December 6 - December 10, 2015
- Net Futures, Brussels 2016
- 2nd IEEE Conference on Network Softwarisation (NetSoft 2016)
- IEEE INFOCOM 2016: San Francisco, CA; April 10 – April 15, 2016

Industry Events

- OSCON – July 20-14, 2015 / Portland, OR
- OpenDaylight Summit (+OPNFV) – July 27-31, 2015 / Santa Clara, CA
- LinuxCon + CloudOpen + ContainerCon – August 17-19, 2015 / Seattle, WA
- Xen Project Developer Summit – August 17-18, 2015 / Seattle, WA
- Unikernel User Summit at Texas Linux Fest – August 21, 2015 / Texas
- OpenStack Silicon Valley – August 26-27, 2015 / Mountain View, CA
- NFV Everywhere – September 16-17, 2015 / Dallas, Texas
- Mobile Edge Computing – September 29-30, 2015 / London, UK
- LinuxCon/CloudOpen Europe – October 5-7, 2015 / Dublin, IE
- CloudStack Collaboration Europe – October 8-9, 2015 / Dublin, IE
- AWS re:Invent – October 6-9, 2015 / Las Vegas, CA
- SDN & OpenFlow World Congress – October 12-16, 2015 / Dusseldorf, DE
- OSCON Europe – October 26-28, 2015 / Amsterdam, NL
- OpenStack Summit – October 27-30, 2015 / Tokyo, Japan
- OPNFV Summit – November 11-12, 2015 / Burlingame, CA
- DockerCon Europe – November 16-17, 2015 / Barcelona, ES

Academic Events

- HotCloud – July 6, 2015 / Santa Clara, CA
- SIGCOMM – August 17-21, 2015 / London, UK
- HotMiddlebox – August 21, 2015 / London, UK

- [AlgoCloud](#) – September 14-18, 2015 / Patras, GR
- [EWSDN](#) – September 30-October 2, 2015 / Bilbao, ES
- [IEEE NFV-SDN](#) - November 18-20, 2015 / San Francisco, CA
- [CoNEXT](#) – December 1-4, 2015 / Heidelberg, DE
- [GlobeCom SAC on NFV](#) – December 7-10, 2015 / San Diego, CA
- [World Hosting Days Global](#) – March 15-17, 2016 / Rust, Germany
- [HostingCon](#) – 24-27 July, 2016 / New Orleans, USA

Standardization

- [IETF-93 SDN+NFV](#) – July 19-24, 2015 / Prague, CZ
- [ETSI SUMMIT](#) – November 19, 2015 / Sophia Antipolis, FR
- NFVRG interim meeting – December 1, 2014 / Heidelberg, DE

4.7 Contacts with EU Institutions and other projects

4.7.1 5GPPP Common dissemination.

The 5G Infrastructure Association (https://5g-ppp.eu/) aims at creating a common coordination and synchronisation on dissemination and communications activities among 5GPPP Projects. For this purpose, common communication channels have been created in order to regularly share information on external publications and press releases to ensure maximum impact.

The SUPERFLUIDITY Dissemination and Communication activities will therefore exploit these channels by:

- Sharing with other 5GPPP projects information and communication Materials
- Tighten connection through social network such as: Twitter, LinkedIn, YouTube
- Preparing common presentation materials
- Events joint participations

The main contact point between SUPERFLUIDITY Consortium and 5GPPP Association is CNIT Coordinator Prof. Blefari Melazzi therefore CNIT will take care to harmonize and coordinate communication and common dissemination.

4.7.2 Other relevant research projects

The SUPERFLUIDITY project implementation implies research and innovation activities in a wide range of domains and scientific fields and applications. Considering this aspect it is very important to take the opportunity to exploit synergies with other Research and Innovation Actions, which are implementing complementary or similar technologies. From another point of view, it is also important to get in touch with such consortia where relevant expertise can be found. Involving other project Coordinators and learning from their experiences will assist the SUPERFLUIDITY implementation. A list of relevant projects is detailed in Table 8.

RELATED RESEARCH PROJECTS	
NAME	WEB SITE/RELEVANT DOMAINS
NetIDE - An integrated development environment for portable network applications	http://www.netide.eu/
Xhaul - The 5G Integrated fronthaul/backhaul	http://www.xhaul.eu/
5GEx - 5G Exchange - Cross-domain orchestration of services over multiple administrations or multi-domain single administrations	https://5g-ppp.eu/5gex/
CONVERGENCE enhances the Internet with a novel, content-centric, publish-subscribe service model, based on the Versatile Digital Item (VDI)	http://www.ict-convergence.eu/
Green ICN - Architecture and Applications of Green Information Centric Networking	http://www.greenicn.org/
FLAVIA Project - FLexible Architecture for Virtualizable future wireless Internet Access	http://www.ict-flavia.eu/
BEBA – BEhavioural BAsed forwarding	http://www.beba-project.eu/
T-NOVA	http://www.t-nova.eu/ (NFV, NFV as a service,

	Orchestration)
Mikelangelo	??/ Drive and evaluate enhancements to responsiveness, agility and security within KVM and OSv stack
Trilogy 2 – Liquid Network resources	http://trilogy2.eu/
EUROSERVER – next generation, green, power-efficient datacentre	http://www.euroserver-project.eu/

Table 8: Related research projects

Such preliminary lists will be updated during the whole life span of the project and will constitute a specific task of the Dissemination activities report (see §7.2 Recording Communication Activities).

5 Events Strategy

Please, specify for the following activities the data related to:

- Possible date and venue of the Kick off of each activity
- General Organization – selection of attendees
- Duration
- N. attendees expected

5.1 Two SUPERFLUIDITY Workshops

The consortium will organize a top-quality academic workshop on areas relevant to SUPERFLUIDITY and two workshops involving policy makers, social and environmental stakeholders to discuss the project's results.

CNIT is planning to organise a SUPERFLUIDITY Workshop to the IEEE INFOCOM 2016 Conference / http://infocom2016.ieee-infocom.org/) at the M10.

5.2 Demonstrations through PoCs

SUPERFLUIDITY will demonstrate its results through proof-of-concept prototypes and trial activities; especially for PoCs involving network virtualization technologies (but possibly extending also to wireless), "open" access also to parties outside of the project will be granted (subject to adhering to the CA and the IPR rules). Open calls for participation to these PoCs will be made by presentations at operator events (e.g., DENOG), through proposals to the ETSI NFV ISG initiative, and by means of different communication media (e.g., the project's website, partners' open source sites).

CNIT will involve Ninux.org, a wireless network community in Italy (http://wiki.ninux.org/FrontPage), based in Rome but spread all over the country with about 300 nodes. In cooperation with CNIT, Ninux.org deployed about 20 INTEL NUC devices (http://www.intel.com/content/www/us/en/nuc/overview.html) running Linux virtual machines in home premises. In SUPERFLUIDITY, CNIT and Ninux.org will assess and test on a production network, with actual users, edge-cloud services (e.g. IoT, home automation, environmental monitoring, edge-NFV) by reusing and improving the already deployed INTEL NUCs and adding similar devices. The CNIT's POCs will be organised when first results will be available and more precisely in the second half of the project.

5.3 Community development

SUPERFLUIDITY will further push its results and develop community awareness by participating to relevant events such: Hackathon sessions (e.g., in cooperation with the Xen Hackathon and as separate SUPERFLUIDITY events), OpenStack summits, "marketing-oriented" presentations at industry events (among others, candidate venues are: Mobile world Congress (MWC), Open Networking Summit (ONS), Layer123 SDN Congress).

5.4 "World" dissemination tours

SUPERFLUIDITY partners will further disseminate the results of the project by committing to "world" dissemination tours of invited talks. The main partner involved in this activity will be person XYZ ULG, who has done the same for Asian countries, giving talks at various universities of the Chinese Academy of Sciences but also at Microsoft Research Asia and Huawei.

5.5 Education: Winter/Summer school

Yearly winter schools will be organized to train students and researcher on the latest SUPERFLUIDITY results.

6 Dissemination Tools

6.1 Logo

Creation of a project identity moves from the creation of a logo, a clear and simple image able to embody the SUPERFLIDITY's concept, to create awareness on it and to attract the attention of the target groups.

The SUPERFLUIDITY Logo represent a multiple sinuous lines crossing connected nodes enforcing the concept of superfluid connection.

Colour, considered as important to brand recognition, is also associated with certain emotions; in fact Blue is often associated in the Software sector and it relates to Professionalism, Trust, dependability and Loyalty. Therefore the colours chosen for SUPERFLUIDITY are:

- Blue: R – 101; G – 194; B – 255;
- Light blue: R – 111; G – 255; B – 226;
- Light grey: R – 110; G – 211; B – 213.

The Font chosen is Calibri Light for its property to express clarity.

The following pictures show the complete logo with lettering and the small logo of SUPERFLUIDITY.

Figure 2: SUPERFLUIDITY Logo
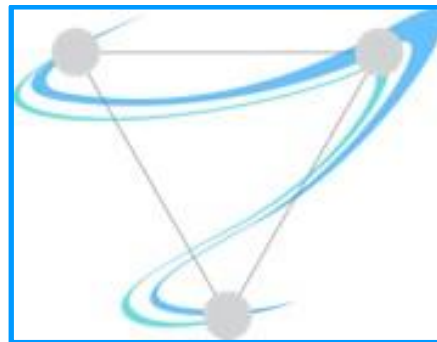
Figure 3: SUPERFLUIDITY Small Logo

6.2 PPT Template

A set of slides has been produced for general presentations, which is available to all partners on the SVN Repository and has been already delivered with Deliverable 1.1. – Project Management Manual. Partners' specific presentations at external events will be made available in the "Public Documents" section of the SUPERFLUIDITY public website.

Superfluidity:
a super-fluid, cloud-native, converged edge system

Call: H2020-ICT-2014-2
Topic: ICT 14 – 2014: Advanced 5G Network Infrastructure for the Future Internet

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 671566"
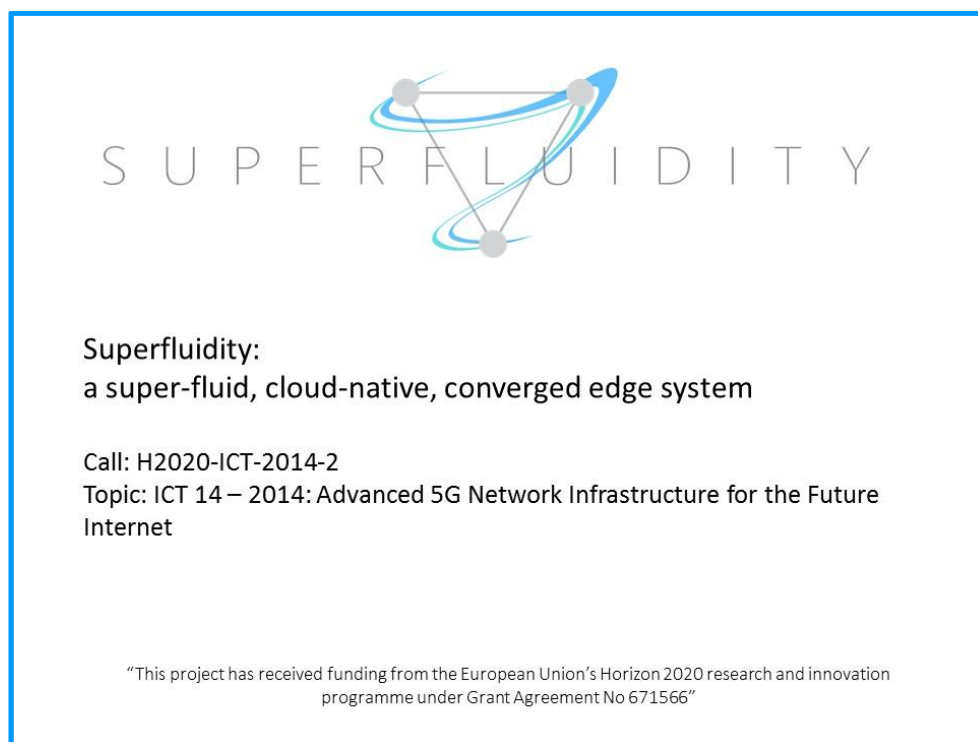
Figure 4: SUPERFLUIDITY PPT Template

6.3 Project Factsheet

A project Factsheet has been realised in order to comply with the common communication activities established within the 5GPPP Association. The Factsheet has been requested by the

5GPPP association and it was realised by CNIT at the end of M1 (July '15). The electronic version will be also downloadable from the SUPERFLUIDITY web site.

Figure 5: SUPERFLUIDITY Factsheet

6.4 Project Leaflet / Brochure

Classical print media (e.g. brochure, flyers and leaflets) will be produced to be freely circulated for project information and promotion at workshops, trade shows, technical fairs, congresses and other events. SUPERFLUIDITY Leaflet will describe in a concise manner the project, its main goals and steps and its partners. Other flyers can be produced on a per need basis.

A first Leaflet/Brochure will be produced by partners CNIT and CITRIX in electronic version (pdf and eps files) and will be circulated among Partners in order to allow them to print paper copies on a per need basis. The Brochure will be realised within M6 and included in this description. The electronic version of materials will be also downloadable from the SUPERFLUIDITY web site.

6.5 Acknowledgement of EU funding

Any material produced within the SUPERFLUIDITY Dissemination and Communication activities and which is addressed to an external target audience shall comply with the terms of GA – Article 29.4 - Information on EU funding – Obligation and right to use the EU emblem. Accomplishing this rule, material shall report in a visible way the following elements:

- EU emblem: http://europa.eu/about-eu/basic-information/symbols/flag/
- It is mandatory to quote the following sentence in any dissemination material produced: "This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 671566".

7 Implementation Plan

7.1 Internal Communication

The composition of SUPERFLUIDITY Consortium requires a consistent effort in sharing and circulating information among all the partners at various stage of the implementation plan and WPs interaction. For this reason, all the relevant information related to Dissemination and Communication activities shall be communicated to Project Coordinator and WP8 Leader in order to allow them in collecting, supervising and coordinating effort among all the activities performed A specific folder in SUPERFLUIDITY SVN is available for storing and collecting materials and documentation related to Dissemination activities.

7.2 Recording Communication Activities

In a project like SUPERFLUIDITY where the effort required to build the platform is considerable it is easy to under-estimate the importance of the dissemination activities and to not record all the relevant activities. In order to maximise and optimise effort it is important to keep the Project Dissemination records continuously updated.

SUPERFLUIDITY is equipped with a simple Excel workbook where all the partners can record (by uploading on SVN) the Dissemination and Communication activities carried out.

In order to complete the issue, it is very important to produce evidence of the activities performed by collecting:

- Material produced (leaflet, brochures, PPT)
- Proceedings
- Pictures
- Contact details.

The mentioned Excel workbook is drafted in order to collect information about the following Target:

- Exhibition and Fair: information and related material about Events where SUPERFLUIDITY Has been presented
- R&D Expertise: Professionals and Individuals whose expertise could be relevant for SUPERFLUIDITY Activities
- Industrial Sector: Industrial Stakeholders
- Related Projects
- General Public
- Publication: Scientific and Press release publications

7.3 Measurement of activities

Key performance indicators have been identified to monitor the efficacy of the dissemination activity.

The table below identified, since the proposal stage, the Key Performance Indicators.

N. OBJ	What	Description	Key Performance Indicator (KPI)
OBJ 1	Open Source Contributions	Contributions to open source projects at TRL 6 (technology demonstration): e.g., OpenStack, OpenDaylight, Xen, OPNFV, DPDK, cnp.neclab.eu, netmap/vale, Open Air Interface.	At least 1 per project per year
OBJ 2	Proof of Concepts (PoCs)	Application and demonstration of project's concepts at TRL 6 (relevant environment): a representative prototype system which goes well beyond discrete component level breadboarding.	At least 2 in total
OBJ 3	Contributions to Standards	Contributions to standardization organizations related to 5G: 3GPP, ETSI NFV ISG and MEC ISG, ONF W&M WG, IETF/IRTF NFV-RG, SDN-RG and SFC-WG, NGMN, etc.	At least 2 per year
OBJ 4	OpenStack Summits and Hackathons	Organization of special sessions at events like OpenStack Summits and Xen Hackathons to disseminate SUPERFLUIDITY results. One SUPERFLUIDITY-organized Hackathon for deep-dive into SUPERFLUIDITY software.	2 Hackathon session (e.g., XEN)
OBJ 5			2 OpenStack Summit presentation
OBJ 6			1 SUPERFLUIDITY Hackathon
OBJ 7	Industry events and ad-hoc meetings	"Marketing-oriented" presentations at industry events (e.g., Mobile World Congress, Open Networking Summit, Layer123 SDN Congress, RIPE / NANOG / DENOG, World Hosting Days (6.000 visitors in 2014), Hosting Con events.	At least 2 presentations per year
OBJ 8		Discussions with policy makers, social and environmental organizations regarding project results: SUPERFLUIDITY workshop organization.	1 SUPERFLUIDITY Workshop
OBJ 9	Collaboration with 5G-PPP stakeholders	Cooperate with other peer 5G-PPP projects in the framework of the 5G-PPP overall programme	Allocate resources as described in the WP1 table

OBJ 10	Education and Training	World-wide dissemination tour	2 world-wide dissemination tours
OBJ 11		SUPERFLUIDITY's academic workshop and winter school camp events.	1 academic workshop and 2 winter schools
OBJ 12	Publications	Key scientific publications at top tier conferences (e.g., SIGCOMM, CONEXT, INFOCOMM, NSDI, OSDI, etc.), associated workshops, and magazine/journals (IEEE Transactions, ACM Computer Communications Review, etc.)	At least 2 per year
OBJ 13			At least 7 total
OBJ 14	Web site, Social Networks, Press Releases	Wiki-style web-site allowing easy retrieval of main project data (including software repositories), as well as social networks presence. Press releases targeting the public at large to allow for wide dissemination of project concepts and results.	Web-site up and running from M1
OBJ 15			Social networks' account ready from M2, 1 post/update per month
OBJ 16			1 press release per year

Table 9: Dissemination Key Performance Indicators

Other Success Indicators, which will be monitored during the implementation of the project, are listed in the table below. The monitoring period of Expected progress reflects the due date of delivery of related Report on Communication and Dissemination Activities, i.e.:

- D8.2 First report on Communication, Dissemination Actions, Standardization and Open Source Contribution (M12)
- D8.4 Second report on Communication, Dissemination Actions, Standardization and Open Source Contributions (M20)
- D8.6 Final Report on Communication, Dissemination Actions (M30)

COMMUNICATION CHANNEL	INDICATOR	EXPECTED PROGRESS		
		M1 - 12	M 13 - 20	M21 - 30
Web site	N. of Posts			
	N. of Visitors			
Brochure	N. Brochures distributed			
Press	N. of publication on paper press			

Press	N. of publication on online press			
Events	N. of Conferences, workshops, exhibition where the project is presented			
SUPERFLUIDITY Events	N. Attendees			
Social Media	N. of Feedback collected			
Other Project	Number of participation to meetings organised by other projects			
Other Project	N. of people from other projects participating in SUPERFLUIDITY events			

Table 10: Other Dissemination Indicators

8 Data Management Plan

The purpose of the Data Management Plan (DMP) is to provide an analysis of the main elements of the data management policy that will be used by the applicants with regard to all the datasets that will be generated by the project.

The DMP is not a fixed document, but evolves during the lifespan of the project. The DMP should address the points below on a dataset by dataset basis and should reflect the current status within the consortium about the data that will be produced.

8.1 Data set reference and name

Identifier for the data set to be produced.

8.2 Data set description

Description of the data that will be generated or collected, its origin (in case it is collected), nature and scale and to whom it could be useful, and whether it underpins a scientific publication. Information on the existence (or not) of similar data and the possibilities for integration and reuse.

Metrics datasets relating to the characterisation of workloads and the NFV Infrastructure hosting the workloads will be collected by WP4. The metrics will be collected using embedded telemetry within virtualised workloads or from the NFVI platform. The metrics in raw form will comprise of standard system metrics such as CPU utilisation, cache hits/misses, RAM utilisation. Network related metrics will also be collected such as throughput, latency, jitter etc. for test VNF's. Derived or synthetic metrics data sets maybe also be generated from the raw metrics to provide indirect quantification of system behaviours which cannot be measured directly e.g. bits per CPU utilisation BMSR etc. It expected that data collected will be used in the preparation of peer review publications. Additional the data will exploited to generate new research hypothesis during the course of WP4 activities.

8.3 Standards and metadata

Reference to existing suitable standards of the discipline. If these do not exist, an outline on how and what metadata will be created.

8.4 Data sharing

Description of how data will be shared, including access procedures, embargo periods (if any), outlines of technical mechanisms for dissemination and necessary software and other tools for enabling re-use, and definition of whether access will be widely open or restricted to specific groups. Identification of the repository where data will be stored, if already existing and identified, indicating in particular the type of repository (institutional, standard repository for the discipline, etc.).

In case the dataset cannot be shared, the reasons for this should be mentioned (e.g. ethical, rules of personal data, intellectual property, and commercial, privacy-related, security-related).

8.5 Archiving and preservation (including storage and backup)

Description of the procedures that will be put in place for long-term preservation of the data. Indication of how long the data should be preserved, what is its approximated end volume, what the associated costs are and how these are planned to be covered.