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distributed ledger technologies and user-driven automation towards self-SOVEREIGN mobile data access in beyond 5G networks

WP7– Open Science, Standardisation and Exploitation

Deliverable D7.2 "Dissemination, communication, standardization, public engagement plan"

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Executive Summary

The main objective of WP7 is the dissemination of the results obtained within SOVEREIGN project, in order to ensure the visibility of the project, promote its goals and enable the exploitation of its achievements. This deliverable presents a plan of the relevant activities that should take place throughout the project. These activities include the publication of the obtained results in scientific journals and conferences, the participation to standardization bodies and the dissemination of information to special interest groups related with project outcomes, such as telecom operators and over the top service providers. The plans presented in this document are preliminary only and are subject to further refinements and updates during the course of the project.

Contents

1 Introduction

Towards the forthcoming transition to a fully connected world (e.g. Internet of Senses, digital twins), support of connected intelligence requires service advertisement, discovery, negotiation and management that goes beyond the complexity and scalability that existing technologies and subscription-driven MNO processes can handle. In Beyond 5G (B5G) networks, cyber-physical assets and intelligent end points will be capable of translating current service requirements to comprehensive technical specifications dynamically (e.g. QoS/QoE management per service chunk) as well as request for full customization of their service terms in line with current availability of tenants/resources and their application requirements. Distributed ledger technologies (DLTs) hold the key for natively disintermediated, cost-efficient, and anonymous B5G communications, enabling transparency and trust to be established across the integrated DLT, radio access and core network continuum. The SOVEREIGN research programme aims to fuel artificial intelligence (AI) with DLT-backed data in order to innovate the B5G service chain and the B5G protocol stack towards the support of fully decentralized, instantaneous, and anonymous resource trading across the B5G network ecosystem (end terminals, infrastructure, OTT service providers, etc.). SOVEREIGN aims to empower intelligent end points in B5G networks, to gain full control of their identities, connectivity, sessions, service terms, and shared data upon accessing B5G spectrum, antennas, network slices and services. To this end, SOVEREIGN will conceptualize and develop a modular end-to-end service architecture integrating DLT-empowered service provisioning, fully decentralized AAA operations, forward-thinking protocols for self-sovereign identity management and anonymity/data privacy preservation as well as user-driven AI-enabled mobility management and traffic steering over joint DLT/B5G system infrastructures.

The technical contributions of SOVEREIGN are, without doubt, the main priority of the project. However, the dissemination of the developed ideas and the obtained results to a wide audience, ranging from the research community to non-scientific public, is critical for the overall success and the impact of the project on society. WP7 aims to increase the visibility of SOVEREIGN by coordinating the activities related to the dissemination of the results and the exploitation of the proposed solutions. This deliverable identifies the key dissemination activities that should be taken and provides an action plan that should be followed during the whole duration of the project. Some first steps taken during the first year of the project will also be described. However, the main dissemination activities are expected to take place in the following years, based on the obtained technical achievements of the project's technical related WPs.

2 Dissemination Strategy

In full compliance with the contractual arrangements, SOVEREIGN will ensure that the results of the fellows' research are disseminated and exploited by the people, business and society through the following activities.

i) **Website (IQU):** A project website will be setup by IQU at M2, to provide general project information (objectives, consortium), key events (including training activities), milestones, public documents (e.g., deliverables) and communication material, including links to social media, profile of senior researchers. A link to a common cloud repository will also exist. *It is estimated that more than 5K visitors will visit SOVEREIGN's website by the end of the project.*

ii) **Conference/journal publications (UOA):** Scientific publications will be one of the main dissemination mechanisms of the project, targeting to journals and magazines with high Impact Factor (e.g., IEEE Trans. on Commun., Wireless Commun., Netw.) and flagship conferences, especially for intermediate results (e.g., IEEE ICC, GLOBECOM, INFOCOM). All partners will present demos at dedicated workshops, exhibitions and events (e.g., IEEE SIGCOM). *It is expected that, on the average, each beneficiary will publish close to 4 top-tier conferences or journals papers. UOA will coordinate the activity.*

iii) **Workshops/conference organization (IT):** SOVEREIGN will organize two workshops (M20 by LIU/FOG and M34 by IT/IQB) and one final conference (M42 by UOA/IQU), which will be open to both academia and industry, co-located with important IEEE conferences (e.g., ICC, GLOBECOM, EuCNC, SIGCOM) to disseminate a unified view of project results. *It is expected that more than 100 people will attend each workshop and more than 200 the final conference.*

iv) **Industrial Dissemination Day (IQB):** One IDDs (M32 by IQB/ULU) will be organized, enabling the fellows to present results to industrial experts, exploiting co-location of flagship events organized by the partners (e.g., ICT Spring Europe by ULU) to provide valuable networking and feedback to ESRs while maximizing the project's visibility. During the IDDs, industry-focused keynotes, poster and demo presentations will be organized. Through IDDs, fellows will establish links with other industry and academia partners.

v) **Open science engagement (LIU):** The project will establish a *research data management (RDM) plan by M1* (**D1.3**) to fully comply with both mandatory and optional open science practices (i.e., HE Programme Guide/AGA art. 17). A **Data Management Officer** (DMO) is appointed (IQU: Dr. K. Ramantas) to continuously monitor the RDM activities and measures, taking actions to conform with the

plan. After consultation and approval by the steering board (SB) and the DMO, each fellow will employ *early and open sharing* of his/her problem statement, target methodologies and tools in **preregistration** repositories (e.g., OSF), and post to the European Open Science Cloud (EOSC) a **metadata report** for new publications (with a DOI reference), summarizing *negative results* and defining *reproducibility measures* by specifying *metrics, instruments and data used*. A public SOVEREIGN **GitHub repository** will host **datasets** (e.g., online pricing by IQU, user-driven localization and traffic steering by UOA), **simulation code** (e.g., UOA MATLAB code), **software images** (e.g., service modules), and **guidelines for remote access to the demo results** (integrated in D6.1), to *create a vibrant community for DLT-backed self-sovereign B5G operations*. The project will further seek for **active engagement of citizens, civil society and end-users (CCSEE)** by appointing to a 5-member external committee (consisted by 1 citizen, 1 interlocutor organization and 3 end-users with sufficient expertise in the research areas 1-4), the role of **co-designing** (e.g., D2.1: scenarios framework and business models), **co-creating** (e.g., front-end design of the PoC platform by UOA, pricing options/formats by IQU) and **co-assessing the key project results** (e.g., the CCSEE committee will consult the SB).

vi) **Participation in IEEE Technical Committees – TC (IT):** TCs foster different forms of information exchange in multi-disciplinary fields (blockchain, 5G, IoT, etc.). SOVEREIGN exploits the active involvement of partners in IEEE TCs, e.g., IT, FOG and UOA in CSIM – Prof. Rodriguez is the new CSIM Vice Chair (2023), LIU co-chairs the IoT Tactile Internet SIG, to involve fellows (as members) in relevant TCs and allow them to attend meetings co-located with flagship IEEE conferences (e.g., ICC, GLOBECOM), presenting and discussing steps toward standardization. *It is expected that each fellow will attend at least one meeting throughout his/her secondment. IT will lead the activity.*

3 Communication and public engagement

3.1 Communication strategy

The SOVEREIGN communication strategy starts at the outset of the action and continues throughout its entire lifetime, while it is strategically planned to effectively promote results to wider audiences. A specific WP, tasks and deliverables have been planned to this end (WP7), forming a continuous communication process with a specific timeline involving all partners and fellow researchers. The vast experience of project beneficiaries in the field guarantees the SOVEREIGN's communication efficiency.

i) **Brochures (LIU):** SOVEREIGN will issue two brochures summarizing the activity, innovations, and potential impact of the SOVEREIGN solutions, DLTs and B5G in the daily life of EU citizens, in a more open and less scientific way. Brochures will be available in English, Spanish, French and Swedish and be disseminated to city councils, local universities, schools, recreational areas, etc., at M13, M46. Through this channel, *SOVEREIGN aims to reach in total 5K individuals of the general public (online).* LIU will drive the preparation of brochures integrating information from all ESRs and senior researchers.

ii) **Social media (IQB):** We will create-manage accounts in popular social media by M3 (X/Twitter, LinkedIn, etc.), which will be used as channels for providing information to the general public on events, activities and advances of the project. *SOVEREIGN will have 10 posts per month, reaching 300 individuals monthly.* IQB will manage social media accounts.

iii) **E-newsletters (IT):** E-newsletters will be issued bi-yearly (starting at M12) in the project online tools (website, social media) and be delivered through at least 4 institutional and technical mailing lists, advertising the SOVEREIGN achievements (e.g., technologies, demo KPIs), events (e.g., workshops) and activities to the key B5G stakeholders (e.g. 5GPPP, MNOs, experts). They will include fellow interviews, stressing the impact of participation in EU actions in their career and life, aiming at attracting attention of at least 300 individuals per issue. IT will lead the activity.

iv) **Multimedia content to target public (ULU):** SOVEREIGN will have a YouTube channel to post i) two trailers on plans, activities, and achievements (yearly), ii) four interviews by fellows to communicate recent achievements and experiences from MSCA (M39), iii) one interview per beneficiary, to highlight how SOVEREIGN promotes academic-industrial innovation (M32). *The target is to reach 10K individuals of the general public (views).* ULU will lead this activity.

v) **Online/Printed Press (INC):** Two articles will be published in National news sites

(e.g., El Pais in Spain, Protothema in Greece), and university magazines (e.g., «το Καποδιστριακό»), to inform the general public (target 100K individuals) on societal benefits, scientific excellence, and new products of SOVEREIGN at M25 and M42. INC will lead the activity.

vi) **Industrial Exhibitions (IQU):** The key project innovations will be presented through stands/demos with working testbeds in at least two industry-attended events (e.g., Mobile World Congress-110k visitors, 5G World-10k visitors), or EC events (e.g., 5G Summit, RAN World) and the project partners (e.g., ICT Spring) at M30, M40. This activity will increase the awareness of the industrial stakeholders and operators on the project results (target at least 100K individuals). IQU will plan necessary arrangements.

vii) **White paper (FOG):** SOVEREIGN will publish a white paper (M38), to identify project contributions, state open issues, and influence policymakers, regulators, experts (at least 2K downloads). The paper will be articulated in 5GPPP/IEEE Future Networks. FOG will lead this activity.

3.2 Public engagement strategy

These strategies foster the interaction of SOVEREIGN researchers with the general public (e.g., non-scientists, students at schools/universities), to present the impact of the project's results on everyday life as well as to create awareness for DLTs/B5G technologies. SOVEREIGN's public engagement strategy is carefully planned, provisioning for timely contributions of all involved beneficiaries.

i) **Public talks (IT):** Each fellow will give one public talk during the project at local associations, universities, science festivals, schools, etc., targeting to 50-100 individuals per talk. Fellows will explain open issues in a didactic manner (examples and hands-on activities) to promote fruitful discussions, explain research carried in the EU and generate interest for science and technology. The target is a multidisciplinary public with interest in Science, Technology and Maths. IT will monitor/track the timing of public talks.

ii) **SOVEREIGN Hackathon (UOA):** SOVEREIGN will fully leverage the participation of Senior Researchers of IQB into the steering committee of the European Cyber Security Challenge (ECSC) as well as existing Hackathons events organized by beneficiaries (e.g., GameofCode by ULU, UOA Hackathon), to organize two hands-on events on DLT-empowered B5G services (M19) and B5G data-driven network automation (M37) with wide participation of programmers, engineers, students, and others, targeting to 50 participants per event. The SOVEREIGN

fellows will setup their own teams, expose themselves in collaborative work and directly interact with external experts. UOA will lead the organization of Hackathons.

iii) **Open Days (ULU):** SOVEREIGN will co-locate 2 open days (M16, M36) with existing events (e.g., Unicareers by ULU, EU Researcher’s Night), with a target audience of 250 students, engaging them in a research environment to familiarize with EU actions. Experimental demos, hands-on sessions, applied examples will be prepared by fellows. ULU will plan events and questionnaires.

iv) **Frequently Asked Questions (FAQ) Blog (IQB):** A Blog to FAQs on SOVEREIGN research will be integrated to the website by M14 to help the general public (target: 200 visits per month) understand practical aspects of the project and encourage two-way communications through public posts/answers. Each fellow will contribute 2 posts. IQB will manage the blog and collect posts.

4 Standardization

Standardization (FOG/ULU): SOVEREIGN targets at a having a significant impact on DLT, network automation and B5G standardization by fully leveraging the leading role of beneficiaries in relevant standardization bodies and setting the ambitious aim to achieve at least 3 impactful contributions in relevant standards and 2 presentations/posters in workshops/meetings organized by these bodies: 1) 3GPP: ULU will process the joint work performed by ULU, IQU and FOG fellows to contribute in 3GPP SA2 (Architecture) WG on NTN access. IT and IQB will further seek contributions to SA3 (Security) on network-level mixing and self-sovereign identity management. 2) IEEE: LIU fellows will contribute with their outcome on semantics-empowered service discovery and pairing to the IEEE P1918 Tactile Internet Standard (Prof. N. Pappas – LIU is leading member for the network architecture in P1918). 3) 5GPPP/6GIA: SOVEREIGN will exploit the presence of beneficiaries in the 5GPPP board of directors (e.g., ULU, FOG) to articulate results through multiple channels (posters, white papers) and consolidate the SOVEREIGN viewpoint in key 5GPPP WGs, e.g., Architecture (ULU/FOG/IQU are members) and Software Networks (FOG/IQU are members).