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Title	: Dissemination and Communication Report (Updated Version)
Confidentiality Level	: PUBLIC
Lead Partner	: Space Applications Services
Abstract	: This document is the SCHUMANN Dissemination and Communication report that describes the related activities and results in the project, following the associated Dissemination and Communication Plan
EC Grant N°	: 101082449



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DOCUMENT APPROVAL SHEET			
	Name	Organization	Date
Prepared and Cross-Reviewed by:		Space Applications Services	10/04/2024



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1.0.0	10/04/2024	SpaceApps	All	Initial Release
1.0.1	10/04/2024	SpaceApps	Front Page	Remove Project Officer reference

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1 Introduction

1.1 Purpose and Scope

This document is the SCHUMANN Dissemination and Communication report that describes the related activities and results in the project, following the plan defined in RD2 (following the same structure). Communication activities aim to inform the general public about the project objectives, progresses made, new knowledge gained and outcomes and impacts generated. Dissemination activities aim to share and publish the latest research and development results in order to encourage wider research and technical users and stakeholders to adopt SCHUMANN concept, approaches and technologies in other technical systems.

This version is the first iteration, covering the activities up to M14 (PDR). It will be updated in the final version by the end of the project (M24).

1.2 Document Structure

In brief, the document is structured as follows:

Chapter 1	Introduction
Chapter 2	Communication Activities Reporting
Chapter 3	Dissemination Activities Reporting
Chapter 4	Conclusions and next steps

1.3 Applicable Documents

AD1	SCHUMANN (Project 101082449) – Grant Agreement (October 2022)
AD2	SCHUMANN Consortium Agreement, version 2.1 (October 2022)

1.4 Reference Documents

RD1	Project Website and Identity Material, SCHUMANN-WP4-D4.1-SA_1.0.0
RD2	Dissemination and Communication Plan, SCHUMANN-WP4-D4.6-SA_1.0.0

1.5 Acronyms

CP	Conference Participation
DSSCK	Design and Development Specification for the Satellite Construction Kit
DVVP	Design, Verification and Validation Plan
EC	European Commission
FSM	Functional Spacecraft Module
IAC	International Astronautical Congress
IAF	International Astronautical Federation
IOD	In-Orbit Demonstration
JP	Journal Publication



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REA	Research Executive Agency
RTa	Refuel Tank Module
TBC	To Be Confirmed
TBD	To Be Defined

2 Communication Activities Reporting

2.1 Communication Purpose

The communication of the SCHUMANN activities are of significant importance to the project's impact. The aim is to capture the attention of key stakeholders, making the outcomes of the project highly visible (also advertising EC as funding organization), looking for business opportunities and establishing contacts with a range of relevant organization and people (industrial, scientific, academic – including students), promoting the relevance and benefit of developed technologies to “create” the will to use those technologies (NewSpace industry actors). These activities will be carried out continuously, and their effects will be analyzed and quantified also in continuity. High communication impact will be achieved through the combination of different methods

Main Communication activities include:

- Preparation and maintenance of the project website
- Social media presence and updates (mainly LinkedIn and Twitter/X)
- Preparation of communication material including flyer and News Letters
- Preparation of video movie/rendering for general communication purpose

2.2 Status of Communication Actions

The following table provides a status on the planned communication activities as described in RD2. It is followed by illustrations of the different activities of communication.

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Table 2-1: SCHUMANN communication activities status

Description	Schedule	Status
Initial measures at the beginning of the project		
Definition of a project's identity, including logo, color palette and presentations templates	M2	Done, documented in RD1
Design and setting up of the project website, including initial project description (goals, Team, methodology....)	M3	Done, documented in RD1 https://www.horizon-schumann.eu/
Setting up social media tools, including Twitter, LinkedIn, YouTube and Research Gate	M3	LinkedIn (44 followers): https://www.linkedin.com/company/schumann-project-horizon-eu Twitter/X (15 posts, 22 followers): https://twitter.com/SCHUMANN_EU Youtube : to be setup (not yet material) Research Gate : to be setup (not yet material)
Prepare project flyer/leaflets summary sheet for diffusion during events or for promotional discussions	M4	Done (see below) Can be updated with first implementation results (WP1 and WP2)
Continuous activities along the project		
Update social media with projects news and relevant events (e.g. successful milestone)	At each relevant event	Up to date
Update project website News page	At each relevant event	Up to date
Update website project progress description and review of content	At each main project milestone	Will be updated after PDR
Update website Publication page	When relevant material available	Will be updated with accepted public deliverables and publications after PDR

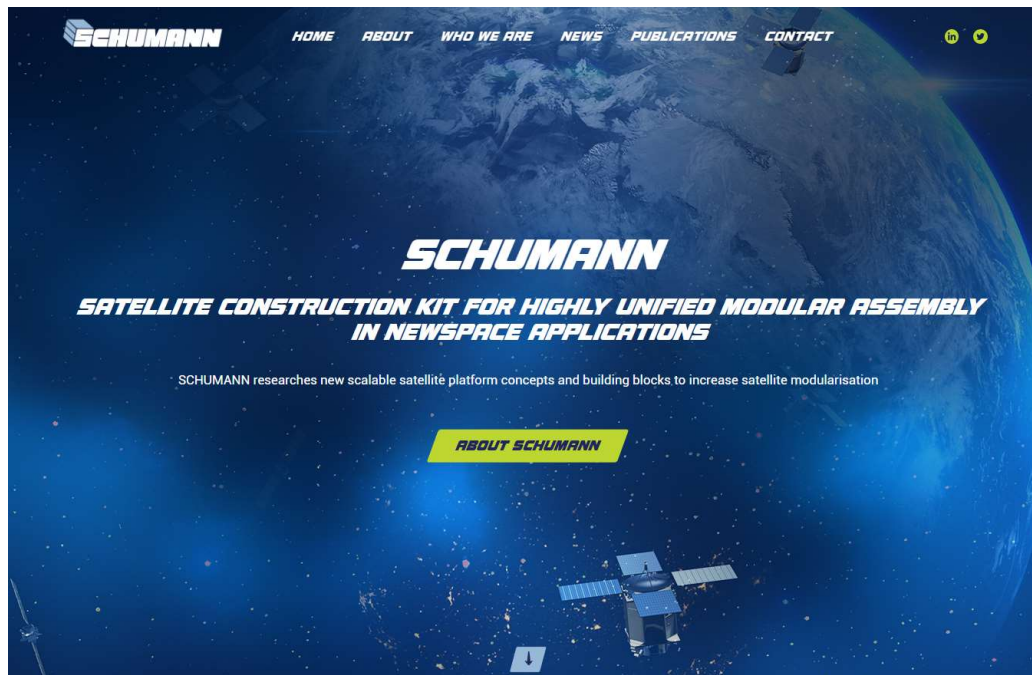


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Preparation of project News Letter	Twice a Year	Pending, a first version will be published after the PDR
Actively answering to external requests for information and contacts	When contact feedback	Up to date
Review and Analyze project communication actions Impact (social media statistics)	Twice a year and for each reporting action	Up to date
Post-Project transition and follow-up activities		
Preparation of professional quality short movie (~3' - with professional voice over) stressing the key concepts and potential benefit for SCHUMANN results' potential users	M24 (available for final project presentation)	A first introductive video is under preparation that will be used for general communication activities by the end of the project and as support/inspiration for the final project movie.
Keep project website available and social media open, as well contact form	For at least 1 year after the end of the project	Pending the end of the project

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FEATURED

SCHUMANN @ THE SSSIF IN MALAGA

We had the pleasure of presenting the SCHUMANN project at the SSSIF 2024 Conference (Small Satellites & Services International Forum), held in Malaga, Spain, from February 20th to 22nd. The project was showcased during the session titled "Market and Future Vision of Small Satellite Platforms," where it garnered interest from the panel. Concurrently, we established [...]

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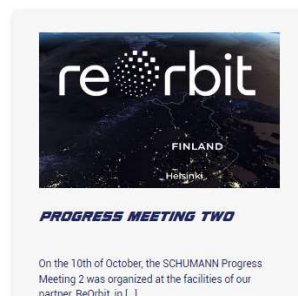


Figure 2-1: SCHUMANN website front page and News page

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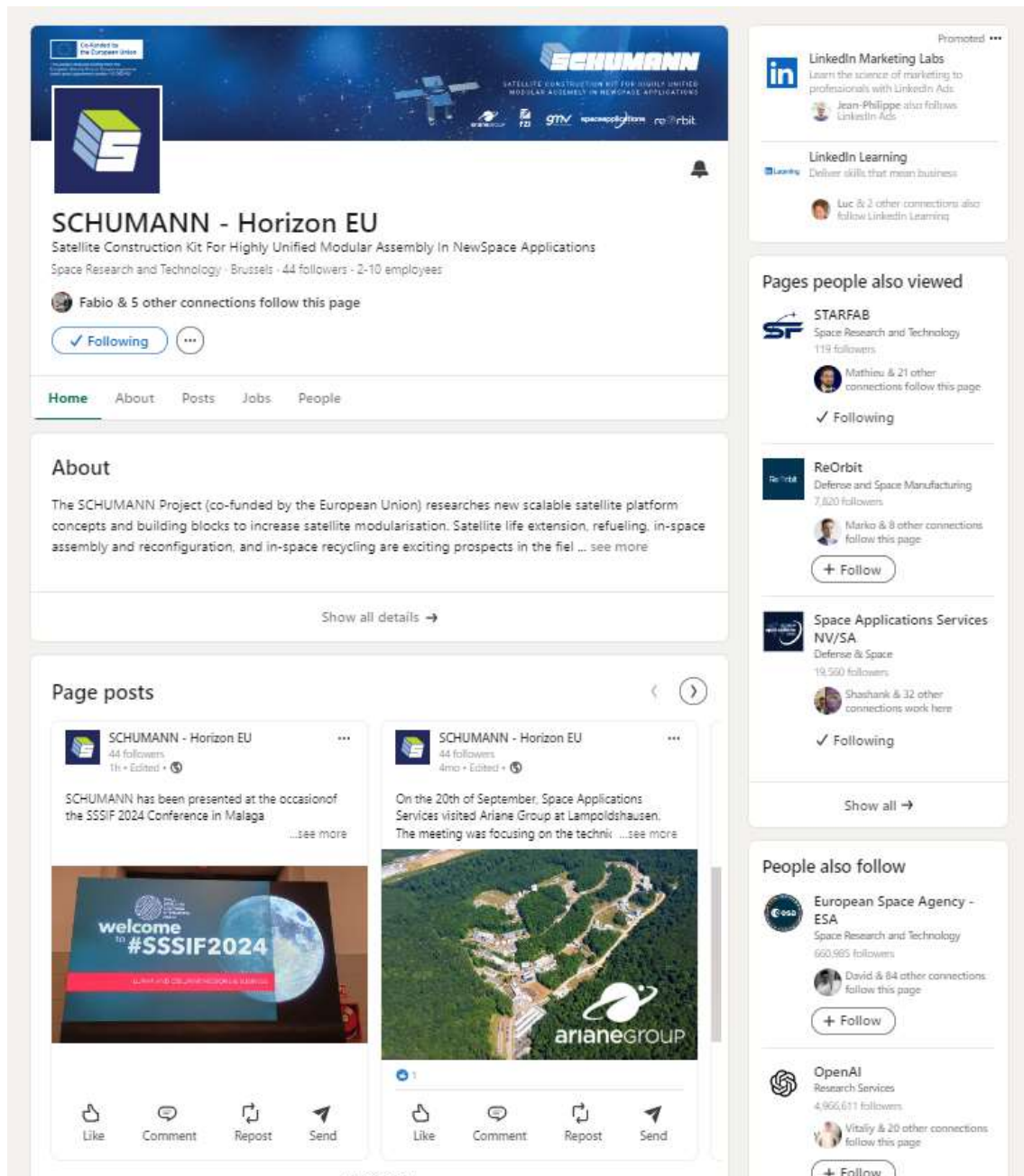


Figure 2-2: SCHUMANN LinkedIn front page

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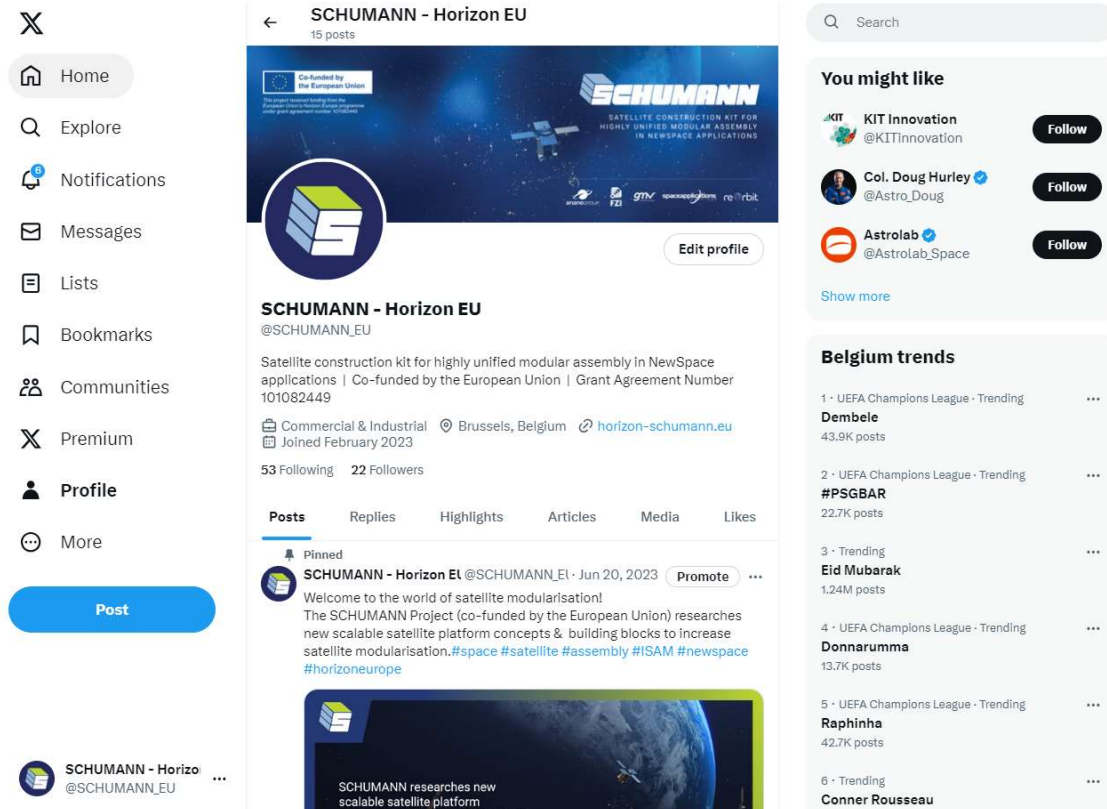



Figure 2-3: Twitter/X front page

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Satellite Construction Kit for Highly Unified Modular Assembly in Newspace Applications

FOSTERING MODULARITY IN NEWSPACE


NewSpace deals with a fundamental transformation of the space industry and applications landscape – a deep paradigm shift, which was initiated a few years ago and operates progressively. Applications such as satellites life extension by means of Orbital Replacement Units (ORU), refueling, in-space assembly and reconfiguration, in-space recycling are promising New Space applications that are poised to generate in excess of 10 billion Euros in revenue opportunity by 2030.

SCHUMANN ambitions to make the development of modular spacecraft elements simpler, more affordable, and more straightforwardly integrable by satellites manufacturer. Two main tracks are being implemented in SCHUMANN.

► FUNCTIONAL SATELLITE MODULE TECHNOLOGY MATURATION

The Refuel Tank (RTa) module aims to implement a refueling experiment setup relying on an evolution of HOTDOCK as a refueling interface. The RTa will undergo qualification tests to reach TRL-6 as a target. The key objectives related to this development are:


- Mature the design of FSM as a foundation of a future space ecosystem
- As a practical use case and example of FSM, mature the relevant technologies to TRL-6 for a Refutable Tank module, and more particularly the HOTDOCK refueling standard interconnect
- Implement a software baseline on top of ESROCOS framework
- Developing the TRL-6 refueling experiment demonstrator for the RTa
- Demonstrate the feasibility of developing a FSM on a track dissociated from EROSS-IOD and make it compatible with mission integration at a late stage



► DSSCK: DESIGN AND DEVELOPMENT SPECIFICATION FOR SPACECRAFT CONSTRUCTION KIT


The objective of the DSSCK is to create a design and development specification primarily aimed for FSM developers. By applying this specification to their work, the FSM developers can make their products compatible with the Future Space Ecosystem, i.e. ensuring that FSM can be effectively adopted and integrated by satellites developers, for a faster and more affordable access to space in the context of Newspace economy. The main objectives are:

- Using notional or real ISAM use cases, define the boundaries of the DSSCK and create a dedicated ontology for it
- Set the baseline requirements
- Create a design, verification, and validation plan (DVVP) including the methodology for the FSM developers to apply and the verification and validation plan to follow to make their FSM fulfill the DSSCK specification
- Test the DVVP by having third-party satellite component manufacturers use it at a conceptual level on their pre-existing or new module








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Figure 2-4: SCHUMANN introductive flyer

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3 Dissemination Activities Reporting

3.1 Dissemination Purpose

Dissemination activities involve sharing the results of a research project with a wide range of audience, including researchers, relevant companies (e.g. from the new space sector), potential end-users of the developed technologies, decision and policy makers. Effective dissemination in SCHUMANN is crucial for ensuring that the project developments and results reach the interested stakeholders, offering higher chance to be used by them, as well given opportunities for further development through collaboration and support by decision makers.

It is important to consider wide range of these stakeholders and design and implement suitable mechanisms to reach out. A combination of dissemination mechanism will be implemented during the project to achieve maximal impact, including conference attendance for quick publications, high quality journal submission for an acceptance of technical excellence, invited talks to present results to targeted policy and decision makers.

3.2 Status of Dissemination Actions

The following table provides the status on the achieved and on-going dissemination activities, per type of action:

Table 3-1: SCHUMANN dissemination activities status

ID	Title	Conference/Event Name	Owner/Lead	Statuses
Peer Conferences				
CP1	SCHUMANN - Fostering Satellite Modularity in the NewSpace Landscape	Symposium on Advanced Space Technologies in Robotics and Automation (ASTRA 2024)	Pierre Letier / SpaceApps	Abstract accepted Paper published Poster session
CP2	SCHUMANN – Satellite Construction Kit for New Space Ecosystems	Small Satellite Systems and Services Symposium (SSSIF 2024)	Pierre Letier / SpaceApps	Abstract accepted Technical Presentation
CP3	SCHUMANN: Design and Development of a Functional Satellite Module for Refueling Applications	75th International Astronautical Congress (IAC 2024)	Pierre Letier / SpaceApps	Abstract Submitted
CP4	RESONANCE: A Satellite Construction Kit (SCK) Software Tool for Satellite Modules Design	75th International Astronautical Congress (IAC 2024)	Theodor Neacsu / ReOrbit	Abstract Submitted
CP5	Conversational Automated Program Repair for ARM Assembly Code using LLMs	Data System in Aerospace (DASIA 2024)	Daniel Silveira / GMV	Abstract submitted

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Journal Articles				
None				
Invited Talks and Symposia				
IT1	Introduction to SCHUMANN	SCHUMANN Workshop	Consortium	Presentation

4 Conclusions and Next Steps

This document has reported on the achieved and on-going communication and dissemination activities in SCHUMANN.

In the follow-up of the project, this process will be continued, with the target to more leverage the first results of the implementation and testing in WP1 and WP2. Specifically the participation of all partners to conferences and other events supporting SCHUMANN will be actively encouraged. Also, actions will be taken to initiate the preparation of journal papers (typically requiring some concrete results) as well as increase our web presence through the website and the social media.

In the last months of the project, the project movie will be prepared to present the purpose of the activity and the results achieved. This will be a major piece of the post-project communication strategy.

End of Document
