

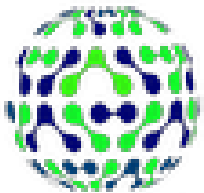


ETSI Conference on Non-Terrestrial Networks, A Native Component of 6G

Session 6: HELENA project

Support to standardisation of Satellite 5G Component

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NOVAMINT

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HELENA project – History



- In 2018, ESA set up a first project “Support to Standardisation of Satellite 5G Component” (ALIX – AO8985)
- Aims were:
 - Support active participation in the 3GPP standardisation process to define the 5G satellite component and its interfaces with other networks
 - Creation of a critical mass to influence this standardisation process.
- ALIX ended in 2022
- ESA called for a new project successor of ALIX through ESA ITT (ARTES FPE ID.023)
- A consortium composed of several companies (Thales Alenia Space (lead), Novamint, TNO, Fraunhofer IIS, Magister, CNIT, EUTELSAT, Airbus DS) was selected in early 2023 by ESA for a 2 years program

=> HELENA

(Highly skilled satellite community members to drive 3GPP Non-Terrestrial Network standardization)



HELENA Consortium

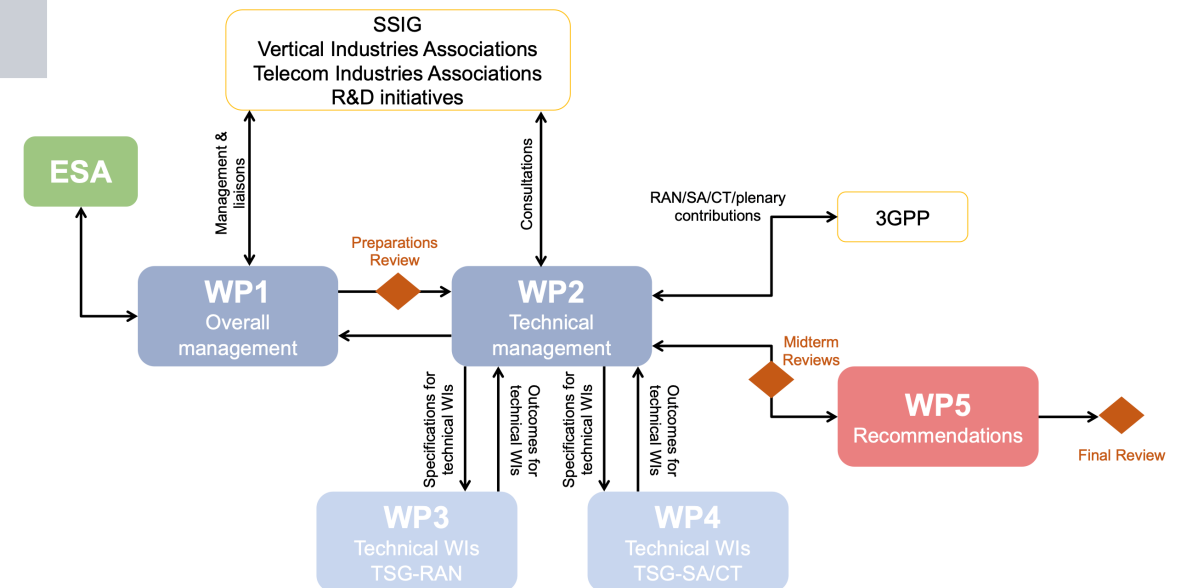


Organisation	Country	Activity	Role in HELENA
Thales Alenia Space	France	World's leading designers of telecommunications satellites, platforms and payloads and the related ground segments.	Study manager WP1, 2, 3 & 5 leader, contributor to WP4
Novamint	UK, France	Independent team of Tech entrepreneurs working as interface between the Telecoms and Verticals/Industrials on 3 pillars: <ul style="list-style-type: none"> • Standardization: to Integrate Verticals & Corporations Use Cases into 5G/IoT requirements and standards • Innovations: to develop IoT & Telecom projects for Corporations or Associations • Business Intelligence 	WP4 leader, contributor to other WPs
TNO	The Netherlands	Research institute for applied scientific research with a mission to be the crucial link from R&D to the commercial exploitation of knowledge in terms of new products and services.	Contributor to WP2, WP4 and WP5
Fraunhofer IIS	Germany	Well known research institute in satellite and terrestrial communication, ranging from initial system design to real-time prototyping and standardization.	Contributor to WP3 (RAN Plenary and RAN1) and WP5
Magister	Finland	World leading independent provider of simulation and consultancy services, incl. research, standardisation, training, prototyping and demonstration.	Contributor to WP3
CNIT	Italy	Non-profit consortium bringing together 38 public Italian universities to perform research, innovation and education/training activities in the field of the Information and Communication Technology.	Contributor to WP3 and WP5
EUTELSAT	France	Leading operator of telecommunication satellites	Contributor to WP3 and WP4
Airbus DS	France	World's leader space telecommunications satellite manufacturer (including platforms, payloads and related ground segments)	Contributor to WP3 and WP4



HELENA project - Organisation

WP	WP description	Lead organisation	Contributors
WP1	Overall management	TAS-F	NOVAMINT
WP2	Technical management	TAS-F	NOVAMINT, TNO
WP3	TSG-RAN Technical work items	TAS-F	NOVAMINT, Fraunhofer IIS, Magister, CNIT, EUTELSAT, AIRBUS
WP4	TSG-SA/CT Technical work items	NOVAMINT	TAS-F, TNO, EUTELSAT, AIRBUS
WP5	Recommendations	TAS-F	NOVAMINT, Fraunhofer IIS, CNIT



HELENA project – 3 pillars

- HELENA Key pillars:
 - SSIG (Satellite Standardisation Interest Group)
 - to ensure that the SatCom industry stakeholders are informed/involved in 3GPP NTN activities
 - Collaboration, coordination and links with other organisations
 - Vertical Industries Associations,
 - Telecom Industries Associations
 - Institutional R&D frameworks for 5G/6G activities
 - other standardization organizations
 - Very Active/Impact in 3GPP
 - Most HELENA partners are well recognised as key contributors to “NTN” standardisation for NR and IoT NTN
 - Experienced in 3GPP people/process (to be impactful)
 - Experienced in understanding telecom world
 - Focus on developing a large ecosystem and accelerating its development

Satellite Standardisation Interest Group (SSIG) 1/3

- SSIG established on January 8th, 2018 (Informal group within the ALIX project led by Thales Alenia Space)
- Sponsored by ESA
- SSIG Vision: Global connectivity services integrating towards unification of satellite and terrestrial networks with common technology standards.
- Rationale:
 - Standards play an important role in achieving this vision of an integrated network
=> it is of great benefit to align satellite technologies, communication services and basic requirements with relevant (terrestrial) network standards (including but not limited to 3GPP).
- SSIG = a platform
 - To exchange information on satellite-related standardization activities for the integration of satellites into the evolving 3GPP ecosystem
 - To promote mutual understanding and collective effectiveness in pursuit of the vision
 - To garner support from individual participating organizations for specific actions they wish to pursue (in line with the vision)

Satellite Standardisation Interest Group (SSIG) 2/3

- Who are invited to join the SSIG as members:
 - All stakeholders who have an active and common interest in promoting the advancement, improvement and seamless integration of satellite technologies, requirements and use cases in the 3GPP global standard,
 - Who share the vision of the SSIG
 - Who are interested in supporting the SSIG's mission in a way that is in the best interest of the entire satellite ecosystem
- SSIG expected outcomes
 - Standardization planning
 - Strategic guidance
 - Improved mutual understanding and collaboration
 - Joint initiatives supported by multiple SSIG participants
 - Sense of unity among SSIG members in the 3GPP arena

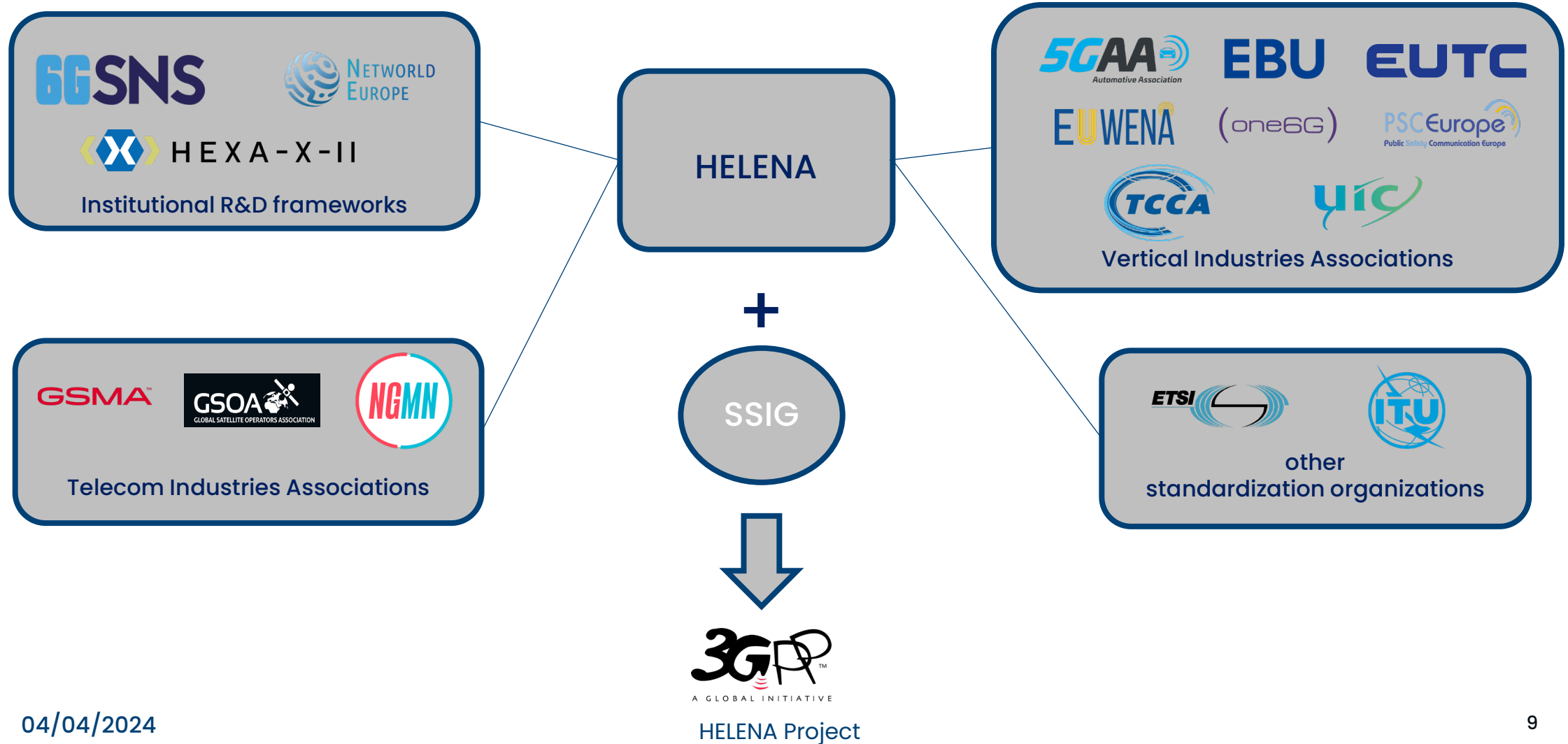
Satellite Standardisation Interest Group (SSIG) 3/3

- SSIG meetings before and after key 3GPP meetings (Every 1 to 2 months)
- SSIG members are primarily
 - Satellite operators
 - Satellite service providers (including virtual service providers)
 - Satellite technology and consulting providers
 - Research institutions interested in advancement of satellite communications
 - Governmental and inter-governmental organizations involved in the development of satellite communications and navigation
 - Manufacturers of hardware and software for satellite ground, space and user segments
- SSIG involvement in 3GPP
 - Around 80 companies/organisations participating to the SSIG meetings/discussions
 - Strong participation to 3GPP (RAN, SA...)
 - 30+ participating regularly
 - 12+ occasionally

=> A success story already strongly recognized within 3GPP and outside (Satellite 2024 award)

HELENA collaborations & coordination

- Helena has links and collaborations with many organizations



HELENA & Impacts on standardisation

1/2

- HELENA & SSIG have contributed to an unified and coordinated answer in all 3GPP groups
 - Rel-19
 - SA:
 - Satellite Architecture enhancements identified as number 1 topic during Rel-19 SA workshop (Taiwan, SA#100, June 23)
 - SA2: Study on Integration of satellite components in the 5G architecture phase 3 for Rel-19 approved (SA#101, Sept 23)
 - SA6: Study on application enablement for Satellite access for Rel-19 approved (SA6#57, Oct 23)
 - SA1: Work item on Satellite access phase 3 for Rel-19 completed (SA#102, Dec 23)
 - RAN:
 - RAN 1/2/3: 2 work items approved (NR NTN & IoT NTN) for Rel-19 (RAN#102, Dec 23)
 - New Work Item on Inter RAT mobility enhancements from E-UTRAN TN to NR NTN for Rel-19 approved (RAN#103, March 24)
 - RAN4: NTN work item on RAN4 for Rel-19 approved (RAN#103, March 24)
 - RAN 1/2/3: Work item for IoT NTN for Rel-18 completed , 3 months extension for NR NTN (RAN#103, March 24)
 - Rel-20:
 - SA1: Satellite access phase 4 – one of the few SA1 studies already approved for Rel-20 (SA#103, March 24)

- Several HELENA members have very active role in current 3GPP activities:
 - Thierry Bérisset, NOVAMINT, Rapporteur for Satellite access in SA1 (Rel-19 & Rel-20)
 - Jean Yves Fine, TAS-F, Rapporteur for Integration of satellite components in the 5G architecture in SA2 (Rel-18 & Rel-19)
 - Relja Djapic, TNO, co-Rapporteur for Study on application enablement for Satellite access in SA6 (Rel-19)
 - Nicolas Chuberre, TAS-F, Rapporteur for NR NTN in RAN 1/2/3 (Rel-18 & Rel-19)
 - Flavien Ronteix-Jacquet, TAS-F, Rapporteur for Inter RAT mobility enhancements from E-UTRAN TN to NR NTN in RAN2 (Rel-19)
 - Dorin Panaitopol, TAS-F, “unofficial” co-Rapporteur for NTN in RAN4 (Rel-18 & Rel-19)
 - Giovanni Romano, NOVAMINT, Convenor for the 3GPP RAN ITU-R Ad-Hoc & Coordinator for the 3GPP submissions towards IMT-2020 satellite (5G NTN)
... And many more
- Objectives:
 - to be impactful in 3GPP at all stages
 - follow through in a clear, coordinated and consistent approach
- If you want to contribute (and you should), they are your points of contact

HELENA & 6G

- Key upcoming events for 6G

When	Event	Content	Where
3-4 April 2024	ETSI ESA Workshop	Conference on “Non-Terrestrial Networks, a Native Component of 6G	Sophia Antipolis, France
8-10 May 2024	3GPP Stage 1 Workshop on IMT2030 Use Cases	Presentations for information of 6G “external views” (MRPs...)	Rotterdam, Netherlands (+ remote access)
27-31 May 2024	SA1#106	6G presentations from 3GPP members + Study on Satellite access Phase 4 (5G Advanced)	Jeju, South Korea
19-23 Aug 2024	SA1#107	Last 6G presentations + 6G study or studies Agreement => start of work on 6G	Maastricht, Netherlands

- Preparing NTN for 6G has already started
 - HELENA members are contributing to promote the SSIG vision of native support of both terrestrial and satellite network components to address a set of common goals in 6G
 - Study on Satellite access Phase 4 (5G advanced) already including multi orbit in its scope
 - Direction promoted by HELENA for 6G in SA1: One common study including satellite as a key component

Key take away

- Collaboration and coordination are paramount
- HELENA and SSIG are contributing to make NTN a native component of 6G
- Join our effort and contribute



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Thank You

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