



# Webinar: 5G/6G Services

**ESA Hosts:**  
Kavitha Muthu  
Davide Coppola

**Guest Speakers:**  
Oliver Wick, BMW Group

# Welcome to the Webinar!

Before we start...

- Please keep your **microphones muted** during the webinar and make sure your webcam is switched off.
- You can use the **conversation function** anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar



## Agenda

1. Introduction
2. ESA Space Solutions
3. Kick-Start Programme
4. 5G/6G Services
5. Our Guest Speakers
6. How to Apply
7. Q&A



## READ ME

- Make sure the Fonts files are installed from the 'Footage' folder
- ***Insert Slides from the Master Slides selection***, that gives you a variety of page layout options.
- There is a 'Footage' folder which includes a number of images that can be included in the PowerPoint, these include Globe Hero images, Industry images and images from the Launch Video.
- You can insert images from the footage folder or relevant images to your presentation, by clicking on the placeholder icon/text.
- The Graphic Elements source page in the Master Slides is where you can copy and paste the Graphic Elements and place them on slides, if you wish to add the decorative elements.

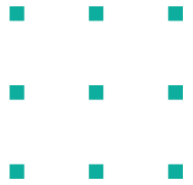
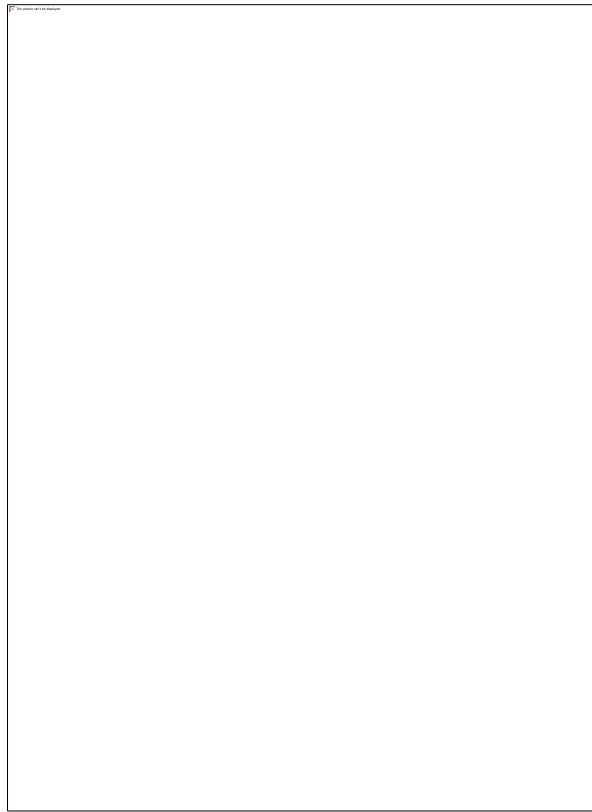


## The largest space innovation network in the world

- The **go-to place** for great business involving space to improve everyday life.
- Supporting European start-ups and SMEs to develop businesses **using space technology and data**.
- Offering **funding, business and technical support** to help to generate successful business and create jobs.



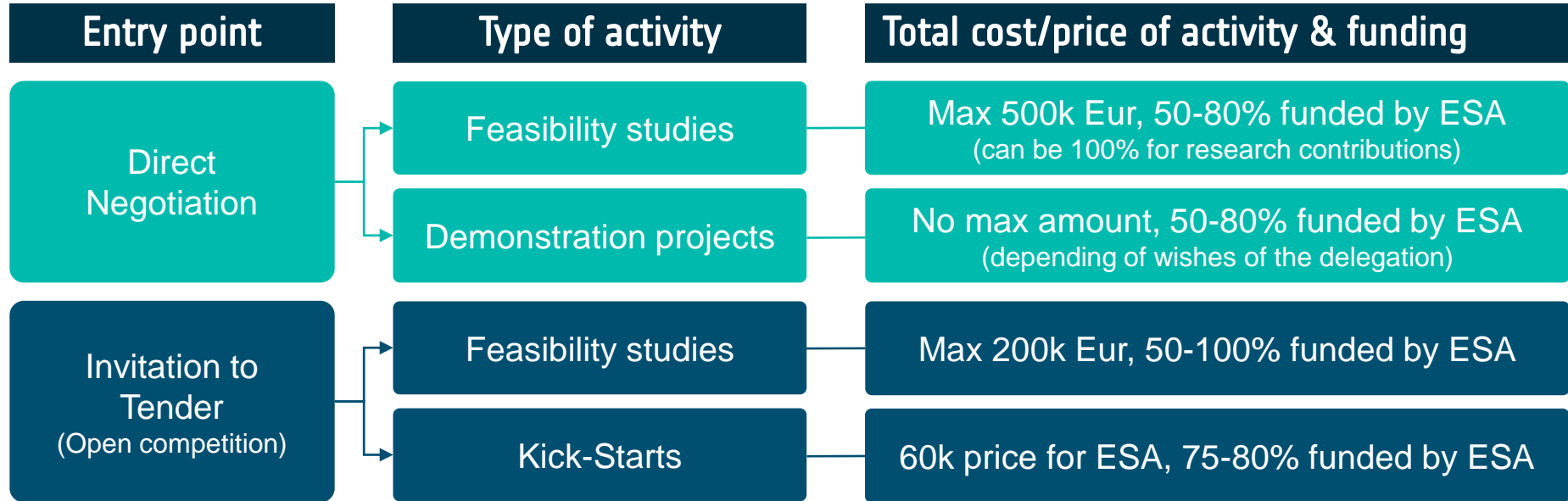
# ESA SPACE SOLUTIONS OFFERS



Project web pages:  
[business.esa.int/projects](https://business.esa.int/projects)



# Funding schemes BASS



ESA UNCLASSIFIED





# Kick-start Activity

## Kick-start Activity: Background

6 months duration -  
Overall cost €80K

€60K ESA funding  
(75% ESA co-funding)

“Kick-start Activities” are ESA's funding scheme enabling companies to undertake short Feasibility Studies that explore new service and application concepts making use of space capabilities.

Limited initial investment by companies, particularly attractive for SMEs and start-ups, granting them an easy entry into ESA Business Applications.

- Rapid evaluation process, to allow companies to keep the pace in the market.
- If successful, possible follow-up support via Demonstration Projects.



## Kick-start Activity

During the Kick-start teams will look at 3 main elements

1. Engagement with **potential end users** and **customers** to understand their needs and translate these into service requirements.
2. Assess the **technical feasibility** of the service, and definition of the service and system architecture.
3. Evaluation of the economic viability of the service and **development of a business plan**.





# Overall Aim of the Kick-start Activity



# “5G/6G Services” Kick-start Activity





# 5G/6G Services: Background

The post-COVID-19 societal and economic adaptations have increased the demand for better connectivity and new applications to support automation, e-commerce, education, healthcare, and more.

- Hybrid of satellite and terrestrial 5G/6G networks will play a key role to accommodate **new market requirements**.
- Support the transition to a **new digitised economy**.
- Offer **faster connectivity** speeds, higher data-throughput capacity, and **low-latency** communications.
- Boost the **societal impact** of space-based applications.
- Beyond 5G, 6G and its precursors are expected to provide higher capacity, much lower latency, and **integrate** a set of **previously separate technologies**.



# 5G/6G Services: Topics

Since the topic of the “5G/6G Services” is so vast, this kick start has been split into three competitions:

## Wellbeing and Entertainment Services (Open 14/03/2022 and Close: 20/06/2022)

eHealth, sport, events, gaming and education. Though broad, the applications therein can expect to be enabled by high data-throughputs, low latency and high reliability provided by future connectivity solutions.

## Industry Transformation Services (Open 20/06/2022 and Close: 20/10/2022)

Utilities, agriculture and manufacturing, to improve efficiency and sustainability of their operations with applications where latency and reliability play a fundamental role.

## Smart Transportation Services (Open 20/10/2022 and Close: 09/01/2023)

Automotive, smart cities and mobility where robust connectivity, high data-rates, high reliability and low latency are vital for applications addressing the needs of the transportation within cities as well as mobility in rural areas.



Smart Transportation Services: Open 20/10/2022 and Close: 09/01/2023

## Automotive



- Vehicle platooning
- Autonomous driving
- Shared mobility

## Smart Cities and Mobility



- Status of parking spots
- Air quality and associated dynamics in relation to traffic
- Positions of vehicles and pedestrian traffic
- Emergency notifications
- Infrastructure health
- Infotainment services



Satcom provide a means to communicate with users located in remote locations where there is no, or limited, terrestrial network. Satellites can also serve to enhance network robustness and resilience. Seamless 5G networks, relying on terrestrial and satellite components, will have a key role in the establishment of novel 5G/6G services in the above domains.



Satellite Earth Observation: SatEO data (both SAR and optical) can be used to monitor and plan infrastructure (e.g. hospitals, buildings, road network). It can provide key data for monitoring and forecasting air quality and CO2 emissions. SatEO data can also be leveraged in real-world gaming and education environments.



Satellite Navigation, Positioning and Timing (PNT) are instrumental in the development of applications requiring geo-referencing, positioning, and timing information. Such technologies can also be augmented by terrestrial PNT technologies to cater to services with more stringent requirements.

## Guest speaker



Oliver Wick

BMW Group

New Technologies / TechOffice Munich





ESA UNCLASSIFIED



ESA UNCLASSIFIED



ESA UNCLASSIFIED





CONNECTIVITY IS THE KEY ENABLER FOR IN-CAR EXPERIENCES.

NAVIGATION.  
PERSONAL ASSISTANT.  
PARK NOW.



MY BMW APP.  
BMW HOTSPOT.  
REMOTE SW UPDATE.



ENTERTAINMENT.  
ON DEMAND VIDEO.  
ON DEMAND AUDIO.





# NTN DEVELOPMENT FOR AUTOMOTIVE. A COMPLEMENTARY TECHNOLOGY?

SCOUTING ACTIVITIES.

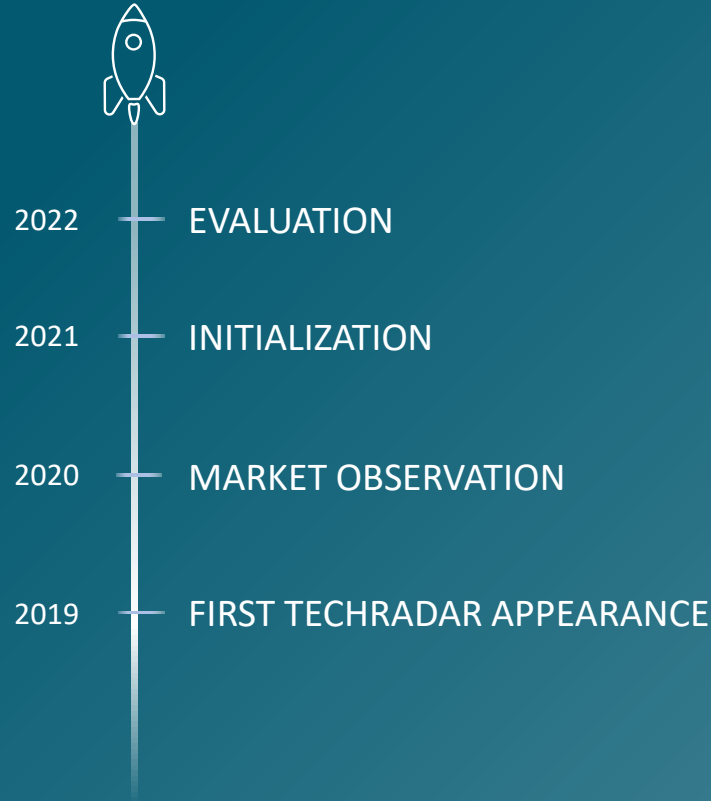
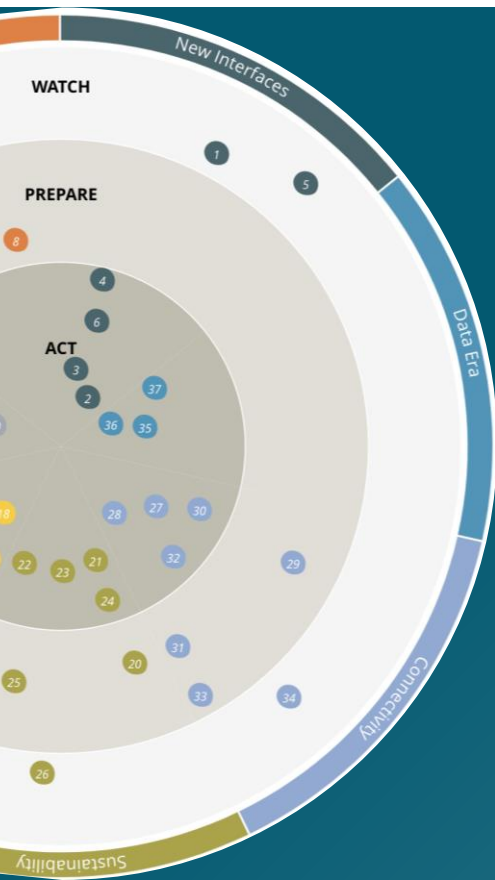
USECASE  
DEFINITION.

QUESTIONS ON  
TECHNOLOGY.

NEXT STEPS.



# THE WAY FROM TECHRADAR INTO EVALUATION PHASE.



# USECASES ARE ALREADY GREATLY COVERED THROUGH 5GAA WHITEPAPER.

NTN complements existing Connectivity UseCases already defined through 5GAA.

Sample UseCases:

- Remote Software Update
- Teleoperated Driving

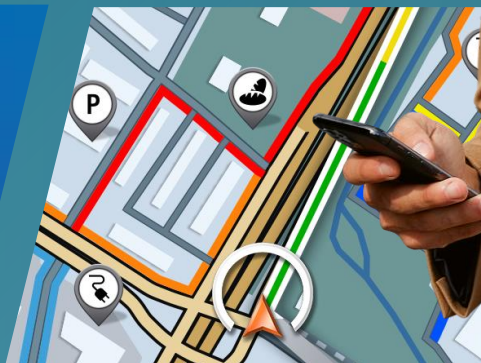
Common base for collaboration between OEM, MNO, Constellation, Antenna- and Chipset Maker )



**5GAA**  
Automotive Association

C-V2X Use Cases Volume II:  
Examples and Service Level  
Requirements

5GAA Automotive Association  
White Paper



# ARE NTN READY FOR THE AUTOMOTIVE INDUSTRY?

## Challenges

OEM face a few Challenges:

- Latency
- Field of View & Beam Capacity
- Integration with Terrestrial Network
- Moving terminals
- Antenna form factor



INTEROPERABLE

COST EFFICIENT

LOW POWER

### Key question ...



#### Technology

- Constraints
- Potential

#### Time

- When is NTN available ?
- Time Horizon 25 - 29

# GETTING NTN PRODUCTION READY THROUGH COLLABORATION.



1 Strategy.

2 Standardization.

3 Technologies.

4 Partnerships.



The image shows the interior of a car, viewed from the driver's perspective. The dashboard and center console are visible, with a large display screen in the center. The screen displays a dark background with a grid of white lines that appears to be receding into the distance, creating a sense of depth and speed. Overlaid on this grid are several diagonal stripes in a light, metallic color. The text "OUR MISSION" and "LET'S ACCELERATE NTN" is centered on the screen in a clean, white, sans-serif font. The overall atmosphere is dark and high-tech.

OUR MISSION  
LET'S ACCELERATE NTN

LET'S CONNECT!



## How to Apply (1/2)



Register

Register by completing online questionnaire on ESA-STAR Registration (minimum 'light registration') [[Doing Business with ESA](#)]

Download

Download the official tender documentation (Invitation to Tender) via ESA Star Publication from 12<sup>th</sup> April 2022

Create

Create 'Bidder Restricted Area' in ESA-STAR Tendering

Write

Write your proposal and obtain Letter of Authorization from National Delegation, if needed.

Submit

Submit your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering [[Doing Business with ESA](#)] by the relevant closing date (don't wait until the last minute!)

## How to Apply (2/2)

The Letter of Invitation to Call for Proposals is issued on ESA-Star Publication [ [Doing Business with ESA](#) ] and includes:

Cover Letter

Appendix 1

Activity Description / Statement of Work

Appendix 2

Draft Contract

Appendix 3

Tendering Conditions for Express Procurement Procedure - EXPRO/TC

Appendix 4

Proposal Template



## Authorisation from National Delegations

- The [authorisation from National Delegation](#) for the specific Thematic Call against which you submit your Proposal is an admissibility criterion. Proposals not authorized at the closing date of the Thematic Call will not be admitted for evaluation.
- For each individual Thematic Call, dedicated clarifications will be posted in ESA-Star Publication to provide information on the list of Member States that have already provided their pre-authorization to the Thematic Call.
- In case your company/organisation resides in a country which has not provided a pre-authorization to the Thematic Call you are interested in; you need to contact your National Delegation. The contact information of the National Delegations can be found at <https://business.esa.int/national-delegations>.

# Proposal template

Your Proposal shall include the following information:

1. Executive Summary (max 1 page)
2. Business Potential (max 5 pages)
3. Technical Concept (max 5 pages)
4. Team and Resources (max 3 pages)
5. Management (max 4 pages)
6. Financials (max 2 pages)



# 5G/6G Services: Application Deadlines

If you are interested in applying please decide which topic your idea falls under and submit a proposal between the opening and closing date

	<u>Opening Date</u>	<u>Closing Date</u>
1. Wellbeing and Entertainment Services	12 April 2022	20 June 2022
2. Industry Transformation Services	20 June 2022	10 October 2022
3. Smart Transportation Services	10 October 2022	09 January 2023

**5G/6G Services**

Home > Funding > Open Competition > 5G/6G Services

ESA-STAR REF	1-11337
ACTIVITY	Kick-start Activity
CLOSING DATE	09-01-2023

Image credit: 24Novembers

**SUB TOPIC OPENING AND CLOSING DATES**

**Wellbeing and entertainment services:** open 12 April 2022 to 20 June 2022 at 13:00 CEST  
**Industry transformation services:** open 20 June 2022 to 10 October 2022 at 13:00 CEST  
**Smart Transportation services:** open 10 October 2022 to 09 January 2023 at 13:00 CET

<https://business.esa.int/funding/invitation-to-tender/5g6g-services>

Thank you!

For more information:

[ESA Space Solutions](https://spacesolutions.esa.int/)  
(<https://spacesolutions.esa.int/>)

[Kavitha.Muthu@ext.esa.int](mailto:Kavitha.Muthu@ext.esa.int)

[Christopher.Frost-Tesfaye@ext.esa.int](mailto:Christopher.Frost-Tesfaye@ext.esa.int)

[Davide.Coppola@esa.int](mailto:Davide.Coppola@esa.int)

