

# #T-TeC

## (Telespazio Technology Contest 2nd edt.)

### INTRODUCTION

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#T-TeC (Telespazio Technology Contest) is an initiative promoted by Telespazio to enhance university research activities within a well-established “*Open Innovation*” process. This process is part of the “*Idea Factory*” of Leonardo S.p.A. The contest aimed at all students, PhD students and researchers from university departments who collaborate or are willing to collaborate with Telespazio on innovative technological themes in the aerospace sector. Following a first edition held on 2019 with an Italian only scope, this second edition opens participation to European university departments too.

The contest supports multidisciplinary ideas, proposals and projects concerning technological issues of strategic importance for Telespazio.

#T-TeC is a unique opportunity for the participants of the different university departments since it offers to competitors the opportunity to present some of their cutting-edge research at the Telespazio innovation table, contributing to enhance its high scientific-technological content. It is also an opportunity for students, graduates and non-graduates, to acquire professional growth and visibility for future collaborations.

### HOW TO PARTICIPATE

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The Contest #T-TeC is open to:

- Students (graduated and non-graduated)
- PhD
- Researchers (research fellows are also allowed to participate)

The Italian and European universities admitted to participate in the competition are shown in the following table:

<b>Universities</b>	<b>Departments</b>	<b>Reference Professor</b>
Università di Bologna	Industrial Engineering	Prof. Paolo Tortora
Università di Bologna	Ing. dell'Energia Elettrica e dell'Informazione	Prof. Alessandro Vanelli Coralli
Università di Bologna	Physics and Astronomy	Prof. Andrea Cimatti
Politecnico di Milano	Aerospace Sciences and Technologies	Prof. Michèle Lavagna
Politecnico di Milano	Electronics, Information and Bioengineering	Prof. Chiara Francalanci
Politecnico di Torino	Mechanical and Aerospace Engineering	Prof. Sabrina Corpino
Università "La Sapienza" Roma	Mechanical and Aerospace Engineering	Prof. Paolo Gaudenzi
Università "La Sapienza" Roma	Civil and Environmental Engineering	Prof. Mattia Crespi, Prof. Francesco Cioffi
Università "La Sapienza" Roma	Automatic and Management Computer Engineering	Prof. Francesco Delli Priscoli
Università di Tor Vergata Roma	Mathematics	Prof. Alessandra Celletti
Università degli Studi di Roma Tre	Engineering	Prof. Alessandro Neri
Università de L'Aquila	Engineering, Information Sciences and Mathematics	Prof. Fabio Graziosi, Prof. Fortunato Santucci
Università di Napoli Federico II	Electrical and Information Technology Engineering	Prof. Giorgio Ventre
Università di Napoli Federico II	Industrial Engineering	Prof. Antonio Moccia
Università degli studi di Messina	Engineering	Prof. Antonio Puliafito
University of Leicester	Physics and Astronomy	Prof. John Remedios
University of Nottingham	Engineering	Prof. Paul Bhatia
University of Edinburgh	School of Geosciences	Prof. Simon Mudd
University of Salford	School of the Built Environment	Prof. Fernando Terrence
Technische Universität Darmstadt	Computer Integrated Design	Prof. Dr-Ing Reiner Anderl
Technische Universität Darmstadt	Computer Science	Prof. Dr.-Ing. Matthias Hollick

Technische Universität Darmstadt	Flight systems and control technology	Prof. Dr-Ing Uwe Klingauf
Technische Universität Darmstadt	Civil and environmental engineering Remote sensing and image analysis	Prof. Dr-Ing Dorota Iwaszczuk
Ecole d'Ingénieurs Agro de Purpan	Biodiversity Remote sensing & Territories	Prof. Simon Giuliano
ICAM Toulouse	The Societal and Technological Transition of Enterprises- Robotics & IoT for Industry	Prof. Mohamed Abadi
Université de Bordeaux (Lab EPOC)	Modeling, Experimentation and Remote Sensing in Sedimentary Hydrodynamics	Prof. Bertrand Lubac
Université Toulouse III Paul Sabatier	LAPLACE (Plasma and Energy Conversion Laboratory)	Prof. Georges Zissis
Universidad Politécnica de Cataluña (UPC)	Research group in Astronomy and Geomatics	Prof. Jaume Sanz Subirana
Universidad Politécnica de Cataluña (UPC)	Institute of Robotics and Industrial Informatics	Prof. Juan Andrade Cetto
Universidad Autónoma de Barcelona (UAB)	Signal Processing for Communications and Navigation	Prof. Gonzalo Seco

It will be possible to participate individually or in groups and it will also be possible to start collaborations between departments of different universities and nations and with different skills.

It will be possible to download the appropriate participation format of the proposal from the website [www.telespazio.com](http://www.telespazio.com). The **completed format** and a **PowerPoint presentation** of the proposal (exclusively in English) for the contest must be sent to the Evaluation Committee by e-mail to the e-mail address [proposals.ttec@telespazio.com](mailto:proposals.ttec@telespazio.com)

**The deadline for submitting the participation format and PowerPoint presentation is October 31<sup>st</sup>, 2020.**

## TECHNOLOGICAL THEMES

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The technological themes of the #T-TeC second edition are the following:

- GeoInformation Applications and Platforms
- Ground Segment and Ground-as-a-Service (GaaS) (Including Automatic Operations)
- Unmanned and Autonomous Systems (including Navigation services)
- Hybrid Communications (Including Content Delivery Networks)
- Cybersecurity for Space
- Exploration Missions (Moon, Mars...)
- In Orbit Servicing
- Quantum Communications
- Space Traffic Management & Space Domain Awareness (including Space Weather, Space Surveillance and Tracking and Space Information Intelligence)

Themes can be treated in any of the award categories (see section “**Award Categories**”).

Participants will have the opportunity to present one or more ideas/projects in each category (each project must have a different team leader). The ideas/projects presented in the same category must concern different themes, therefore it will not be possible for the same team to present two projects concerning the same technological theme.

It is not allowed to submit ideas/projects already presented in the last edition of the #T-TeC or related to initiatives/studies linked to collaborations/contracts already in progress with Telespazio Group.

There is the possibility that several university departments will collaborate in the presentation of the same project.

## **AWARD CATEGORIES**

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The proposals must refer to one of the following categories:

- 1) **Photon** Category
- 2) **Light** Category

**Photon**: ideas and innovations that determine a significant advancement in specific technical/scientific domains of the Aerospace sector. The innovations concern:

- Enabling hardware and software technologies which can be integrated at a higher level and which allow their use in different solutions, environments and scenarios;
- Implementation of physical/mathematical models in tools and algorithms for modelling and simulation of complex operating scenarios;

**Light**: ideas and innovations focused on the integration of ground/space structures in systems capable of promoting new solutions and innovative services. The proposals must provide a high-level view of the

architecture, performance and interfaces among the various components of the system and provide for an analysis of economic-technological feasibility together with the related usage scenarios.

## EVALUATION CRITERIA

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The proposals presented will be analyzed by the Evaluation Committee based on the following criteria:

For the **Photon** Category:

- 1) Originality and Innovation of the proposal with respect to the state of the art of the specific domain
- 2) Sustainability intended as the ability to make solutions more efficient, convenient and compliant with environmental and economic needs
- 3) Compliance to technological issues and Contribution to the company, meant as the ability to bring a competitive advantage over competitors
- 4) Technical and scientific contribution of the idea / innovation and ability to convert / apply the proposed technology in different fields

For the **Light** Category:

- 1) Originality and Innovation of the proposal with respect to the state of the art of the specific domain
- 2) Sustainability intended as the ability to make solutions more efficient, convenient and compliant with environmental and economic needs.
- 3) Compliance to technological issues and Contribution to the company, meant as the ability to bring a competitive advantage over competitors
- 4) Architectural, system and economic feasibility of the proposed solution and synergy among the technological assets involved

For each evaluation criterion a score of 1 to 5 points will be assigned. The following table shows the weights associated with each evaluation criterion.

<b>Evaluation Criterion</b>	<b>Weight (%)</b>
<i><b>Photon Category</b></i>	
Originality and Innovation of the proposal with respect to the state of the art of the specific domain	30%
Sustainability intended as the ability to make solutions more efficient, convenient and compliant with environmental and economic needs	10%
Compliance to technological issues and Contribution to the company, meant as the ability to bring a competitive advantage over competitors	20%
Technical and scientific contribution of the idea / innovation and ability to convert/apply the proposed technology in different areas	40%
<i><b>Light Category</b></i>	

Originality and Innovation of the proposal with respect to the state of the art of the specific domain	30%
Sustainability intended as the ability to make solutions more efficient, convenient and compliant with environmental and economic needs	10%
Compliance to technological issues and Contribution to the company, meant as the ability to bring a competitive advantage over competitors	20%
Architectural, system and economic feasibility of the proposed solution and synergy between the technological assets involved	40%

The Evaluation Committee will be composed of representatives of:

- Telespazio S.p.A/e-GEOS S.p.A
- Leonardo S.p.A.
- Telespazio Vega Deutschland
- Telespazio Iberica
- Telespazio France
- Telespazio Vega UK
- Italian Space Agency
- European Space Agency

## PROCESS AND AWARDS

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By the first half of November, the proposals sent will be presented to the Evaluation Committee remotely, according to the indications that will be provided later to each participant. Consequently, the Evaluation Committee will evaluate the proposals presented in accordance with the above mentioned evaluation parameters. The winners of each categories and two special mentions will be selected among the projects that have aroused interest in the Committee regardless of the score and the category to which they belong.

The final ranking, the winners and the special mentions will be displayed on Telespazio website ([www.telespazio.com](http://www.telespazio.com)). The contest will end by the end of November with the awarding of the winners and special mentions. During this award ceremony day, the winners and the two special mentions will have the opportunity to get to know the company better and will have the occasion to briefly present their projects to Telespazio's Top Management.

The awards relating to the two categories will be divided as follows:

- For the “**Photon** Category” award, the amount will be € 10,000 (to be divided among the members if the proposal is presented in a group)
- For the “**Light** Category” award, the amount will be € 10,000 (to be divided among the members if the proposal is presented in a group)

In the event that the winning projects or special mentions are particularly innovative, Telespazio will evaluate the possibility of supporting the subsequent development (e.g. by identifying the most appropriate funding sources and helping the winners to get access to them).

For further information, please contact us to the address [proposals.ttec@telespazio.com](mailto:proposals.ttec@telespazio.com).