

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR
GABINETE DO MINISTRO

Exma. Senhora
Chefe do Gabinete do Senhor
Secretário de Estado Adjunto e
dos Assuntos Parlamentares
Dra. Catarina Gamboa

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Sua referência:	Sua comunicação de:	Entrada n.º / Data	Processo	Número do ofício	Data
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ASSUNTO: REQUERIMENTO N.º 96/XIII/4.ª DE 17 DE ABRIL DE 2019

Na sequência do nosso ofício n.º 737, datado de 23 de abril de 2019, encarrega-me o Senhor Ministro da Ciência, Tecnologia e Ensino Superior de remeter a V. Exa. cópia do Memorando de Entendimento assinado entre a TEKEVER e a Academia de Ciências Chinesa - CAS, com vista ao estabelecimento do STARLab em Portugal, facultado pela TEKEVER a nosso pedido.

Com os melhores cumprimentos.

A Chefe do Gabinete



Filipa Abreu



**MEMORANDUM OF UNDERSTANDING
ON
PORTUGAL – CHINA STARLAB
(SPACE AND SEA TECHNOLOGY ADVANCED RESEARCH
LABORATORY)
IMPLEMENTATION PLAN**

BETWEEN STARLAB MEMBERS:

TEKEVER GROUP

**CEIIA – CENTRE OF ENGINEERING AND PRODUCT
DEVELOPMENT**

**THE INNOVATION ACADEMY FOR MICROSATELLITES OF
CAS
(IAMC-SECM, CAS)**

THE INSTITUTE OF OCEANOLOGY OF CAS (IOCAS)

5th , DECEMBER 2018

Memorandum of Understanding on Portugal – China STARLab (Space and Sea Technology Advanced Research Laboratory) Implementation Plan

Between STARLab members:

TEKEVER GROUP, a Group of companies established in Portugal, having its legal address at Rua da Lezíria, 1, Óbidos, Portugal, represented by its CEO, Ricardo Mendes (hereinafter referred to as “**TEKEVER**”).

CEIIA – CENTRE OF ENGINEERING AND PRODUCT DEVELOPMENT, a Research and Technology Centre established in Portugal, having its legal address at Av. D. Afonso Henriques, 1825, 4450-017 Matosinhos, Portugal, represented by António Cunha, Member of the board (hereinafter referred to as “**CEIIA**”).

The **INNOVATION ACADEMY FOR MICROSATELLITES OF CAS (IAMC-SECM, CAS)**, a research institution established in the People's Republic of China, having its legal address at Haik Road 99, Pudong District, Shanghai, 201203, P.R.China, represented by its Director, Jiancun GONG (hereinafter referred to as “**IAMC-SECM, CAS**”).

The **INSTITUTE OF OCEANOLOGY OF CAS (IOCAS)**, a research institution established in the People's Republic of China, having its legal address at Nanhai Road 7, Qingdao, Shandong, 266071, P.R.China, represented by its Director, WANG Fan (hereinafter referred to as “**IOCAS**”).

Hereinafter individually referred to as “**Party**” or collectively as “**Parties**”.

HAVING REGARD the Intergovernmental Agreement on Cooperation in the fields of Culture, Science and Technology signed in 1993 between the Government of the People's Republic of China and the Government of the Portuguese Republic.

HAVING REGARD the Memorandum of Understanding between the Ministry of S&T of the People's Republic of China (MOST) and the Portuguese Ministry of Education and Science signed on October 26th, 2012, to strengthen the joint research between the two countries.

HAVING REGARD the common understanding between Portuguese Ministry of Science, Technology and High Education(MCTES) and Chinese Academy of Science(CAS) on the establishment of a partnership, expressed through the letters of the Portuguese MCTES Minister Prof. Manuel Heitor on April 16th, 2018, and of CAS President Prof. BAI Chunli on Jun 4th, 2018.

And

CONSIDERING the cooperation between IAMC-SECM, CAS and TEKEVER that reaches back to 2013, with first agreements signed in 2014, marked by the successful achievement or yearly milestones, such as the organisation of a joint workshop on microsattellites in Shanghai or the launch of three CAS satellites with TEKEVER's GAMALINK intersatellite link onboard.

CONSIDERING the existing STARLab Establishment Agreements between IAMC-SECM, CAS and TEKEVER: "STARLab Establishment plan" signed on September 20th, 2017 in Lisbon, Portugal and "STARLab Supplementary Agreement and Updated Establishment Plan" signed on March 27th, 2018 in Beijing, P.R.China.

And

HAVING IDENTIFIED a common interest in promoting and developing the scientific and technology cooperation between China and Portugal, in Space and Oceans, to enhance scientific and technical interactions between the Chinese and Portuguese communities and to promote further engagement for scientific and technological development in both countries.

HAVING IDENTIFIED significant opportunities to accelerate Space and Ocean related systems' development through the cooperation of Portuguese Organisations with the Chinese Academy of Sciences, on the one hand, and, on the other, the need to establish an institution that could host and further develop the various research initiatives that have been identified and require a stronger engagement between the parts, as well as provide a place and a context to foster further linkages.

HAVING IDENTIFIED the STARLAB initiative, as described below and in previous agreements, as (1) mutually beneficial to Chinese and Portuguese Scientific and Technological communities; (2) targeted towards cooperation in areas that are strategic for both countries; and (3) as a unique and effective institutional platform for engagement and cooperation, complementary to existing initiatives in both countries.

The Parties agree as follows:

Article 1 - Purpose

1. This agreement targets the STARLab Implementation Plan for 2019-2023.
2. STARLab is the **Space and Sea Advanced Technology Research Laboratory**, an international Science, Technology and Engineering Centre to be established in Portugal as a **non-profit association** between two institutes of the Chinese Academy of Sciences, and TEKEVER; CEiiA from Portugal, that will extend its activities to many other stakeholders in both countries.
3. STARLab builds on the 4D vision, to unleash the potential of Science and Technology, namely the development of new knowledge, technology and engineering systems, to enhance knowledge, management and sustainable exploitation of Oceans and Space.
4. The 4D vision targets an integrated approach from **Deep sea to Deep space**, and from **Deep data to Deep mind**.

Article 2 - Goals

1. STARLab has goals at four different levels:
 - a) **Scientific**, to enhance knowledge on natural phenomena with potential systemic impacts, related with Oceans and Space,
 - b) **Technology and engineering**, to develop, demonstrate and apply technology for systems that will allow enhanced operations on Oceans and Space;
 - c) **Institutional**, to establish a new European research institution, contributing towards a long-term partnership between China and Portugal on Science and Technology; and
 - d) **Social**, to identify and analyse trends, critical issues and risks related with technology, economy, and the society that will shape and will be shaped by the future of Earth observation and Space exploration.

Article 3 - Scope

1. STARLab will act in 5 domains of activity, targeting 7 research areas.
2. The **domains of activity** are:
 - a) **Scientific research** on fundamentals of natural phenomena to improve knowledge on Oceans and Space; and on basic concepts that might pave the way for new technologies for the sustainable exploration of Ocean and Space;
 - b) **Technological research** targeting the development of technologies to enable new engineering systems for Ocean and Space;
 - c) **Engineering development, integration and deployment** of systems to enhance observation from deep-sea to deep space, space exploration, and sustainable Ocean operations;
 - d) **Future perspectives**, brainstorming on the future of Ocean and Space exploration and how these contribute to improving life and connecting Science with Society; and
 - e) **Institutional cooperation**, to support a long-term partnership between China and Portugal and establish STARLab as a European research institution.

3. The research areas are:

- a) **Satellite platforms and constellations**, targeting small satellites as enablers of new missions for Earth Observation and Space exploration;
- b) **Space-based sensors**, focusing distributed sensors and new cost-efficient concepts;
- c) **Integrated observation system from deep sea to deep space**, targeting multilayer observation systems across different temporal and spatial scales;
- d) **Deep Space exploration**, focusing on low-cost technologies to accelerate exploration activities;
- e) **Application of Space-based systems and technologies to Oceans** exploring the synergies between Space and Ocean-based systems;
- f) **Ocean Resource Exploration, Monitoring and Protection**, accelerating the development of the blue technologies to explore, protect and sustainably harness the biological resources and ecosystems of Oceans; and
- g) **Emerging technologies**, that might evolve to become key enablers of future systems for Space and Ocean exploration.

Article 4 - Partners

1. STARLab is being proposed by four entities, two from China and two from Portugal:
 - a) **IAMC-SECM, CAS** is the Institute for Microsatellites of the Chinese Academy of Sciences that researches, designs and develops technologies for small satellites. It has manufactured and launched nearly 40 satellites for science missions in the last 15 years.
 - b) **IOCAS** is the Institute of Oceanology of the Chinese Academy of Sciences, researching the Oceans dynamics, ecosystems, geology, interactions with atmosphere and climate, and available resources.
 - c) **TEKEVER** is a multinational group of companies headquartered in Portugal, targeting three main markets: Digital, Drones and Space. TEKEVER is leading the 20+ consortium developing INFANTE, the first satellite from the Portuguese industry.
 - d) **CEiiA** is an engineering and innovation centre focussed on product development and operation in the areas of mobility, smart cities, aeronautics, Oceans and Space. CEIIA has been developing new systems for Ocean operations.
2. Besides these entities that will be involved at the core of STARLab, others will be engaged on a project-basis.
3. STARLab focal points are TEKEVER in Portugal and IAMC-SECM, CAS in China.

Article 5 - Governance

1. STARLab will be established as a non-profit association with voting rights equally divided between Portuguese and Chinese organisations.
2. The **founding members** or the **initial associates** (association shareholders) of STARLab will be **IAMC-SECM, CAS; IOCAS; TEKEVER and CEIIA**.
3. STARLab will be governed through four bodies: General Council (High-level group); Board of Directors (or General Assembly); Executive Commission (Directive Committee) and

Audit Committee. These bodies are in accordance with Portuguese Law concerning non-profit associations.

4. On the **General Council**:

- a) It is a high-level group, with an advisory role, that gathers STARLab members as well as the institutions funding STARLab's activity.
- b) It should analyse annual Plan of Activities and provide the Board of Directors with a statement on its suitability to continue to receive funding from the entities represented in the STARLab General Council, according to their standard regulations and instruments.
- c) Members of the General Council will include the founding members of STARLab and the following entities will be invited to participate in the council from the start:
 - i.* Headquarters of the Chinese Academy of Sciences (CAS);
 - ii.* Portuguese Foundation for Science and Technology (FCT);
 - iii.* Portuguese National Innovation Agency (ANI).
- d) Other members might join the General Council, upon approval by the existing members.

5. On the **Board of Directors**:

- a) It is the decision-making body of STARLab, being responsible, among others, for the approval of Annual Plans of Activities and Reports; Scientific and Technology Roadmaps; multi-year Implementation and Investment Plans; as well as for providing Strategic guidance to STARLab.
- b) It will be comprised by representatives of the Associates of STARLab:
- c) Future Associates will join the Board of Directors.

6. On the **Executive Commission**:

- a) It will be responsible for Implementing the Board of Directors decisions; Preparing the information for decisions by the Board of Directors; and Running STARLab's day-to-day activities.
- b) Initially it will be comprised by three people:
 - i.* 1 Co-Director appointed by IAMC-SECM, CAS;
 - ii.* 1 Co-Director appointed by TEKEVER;
 - iii.* 1 Executive Director nominated by the Board of Directors.
- c) The composition of the Executive Commission will be revised periodically.

7. On the **Audit Committee**:

- a) It will be comprised by a professional auditor;
- b) It will have as main role auditing STARLab's accounts and assessing its activity from a Legal standpoint.

Article 6 - Key Initiatives

1. STARLab's technical activity in the first 3 years of will be aligned around 3 anchor projects: INFANTE, SEATECH and ARMADA; notwithstanding that smaller projects will be executed in parallel with these.
2. On **INFANTE**:

- a) It is a project launched by TEKEVER and its partners (including CEIIA and IPMA) for developing, prototyping, testing and launching a new microsatellite to work as precursor of a constellation for Earth observation, mainly for maritime applications. The project is supported on a 20-party Portuguese consortium and 10 Portuguese and international partners, in which IAMC-SECM, CAS is included.
 - b) INFANTE's activities fall under research area 1 (Satellite platforms and constellations) and 2 (Information services and applications). Initial funding in Portugal is already secured from the consortium as well as from a public R&D grant.
 - c) Through STARLab, IAMC-SECM, CAS will engage in the project on complementary work packages that will enhance the global impact of the initiative, namely through providing a UV-sensor for maritime applications (oil-spill and organic matter detection), a launch opportunity sharing for approx. 50kg satellite, and support to the definition of requirements and verification processes.
3. On SEATECH:
- a) Is a programme launched by CEIIA and its partners (including TEKEVER and IPMA), for developing, prototyping, testing and deploying a set of collaborative data collection vehicles, seamlessly connected to a common management system to work as a precursor of an underwater and surface constellation. The programme is supported on several funded projects, including a major national project funded in Portugal, integrating 12 Portuguese entities and 8 Portuguese and international partners.
 - b) SEATECH falls under research area 5 (Application of Space-based systems and technologies to Oceans) and 6 (Ocean Resource Exploration, Monitoring and Protection). Initial funding in Portugal is already secured from the partners as well as from several public R&D grants.
 - c) Through STARLab, IOCAS and other CAS institutes (like the Shenyang Institute of Automation) will engage in the programme with add-on workpackages that will enhance the global impact of the initiative, namely, through providing additional data collection platforms (such as *gliders* and additional ROV), models and establish the scientific challenges, together with IPMA, on ocean circulation and global carbon and heat cycle modelling, that will allow to precisely define the demonstration mission, articulated with INFANTE demonstration, that is of great relevance to other initiatives.
4. On ARMADA:
- a) It will be the first project fully defined within STARLab, as an international research project for in-orbit demonstration of the capability to manage a distributed sensor network based on a small satellite cluster, enabling future constellations for Earth Observation.
 - b) ARMADA departs from an international partnership between TEKEVER and IAMC-SECM, CAS, with the support of other research institutions.
 - c) ARMADA will be fully funded through STARLab.
 - d) For ARMADA each partner will provide satellites and subsystems to the mission.
5. Other projects that will be implemented within STARLab during this same period, such as:
- a) **LIASE** – Low-cost Intelligent Asteroid Sampling and Exploration, a mission from IAMC-SECM, CAS to which, in the scope of STARLab, TEKEVER and partners will provide new subsystems for the mission.
 - b) **Joint 4D mission** – Pilot mission intending to demonstrate one of STARLab main concepts, the seamless and effective integration of data from Deep Sea to Deep Space,

from Deep Data to Deep Mind, meaning the articulation of a variety of data collecting platforms, integrating them to provide results for end-users (scientific and commercial).

6. From the Installation phase onwards, STARLab will also be tasked to develop high-ambition research lines, targeting large-scale projects with global impact.

Article 7 - Development plan

1. STARLab implementation plan considers two phases: (1) Installation and (2) Consolidation, after the preparation phase that ends in 2018:

Phase Axis	Phase 0 Preparation & Launch 2017-2018	Phase 1 Installation 2019-2021	Phase 2 Consolidation 2022-2023
STARLab Organisation	<ul style="list-style-type: none"> ▪ Establishing STARLab in Portugal as a non-profit association ▪ Ramp up plan 	<ul style="list-style-type: none"> ▪ Opening offices in Lisbon (1st), Porto (2nd), Shanghai (3rd), Qingdao(4th) ▪ Establishment of management and research teams 	<ul style="list-style-type: none"> ▪ Review of STARLab's activities and institutional framework
Research and Development (R&D) agenda	<ul style="list-style-type: none"> ▪ Initial version of the R&D agenda 	<ul style="list-style-type: none"> ▪ Implementation of the R&D agenda ▪ Revision of the R&D agenda - definition of new high-ambition research lines 	<ul style="list-style-type: none"> ▪ Implementation of the R&D agenda, including high-ambition research lines
Key initiatives	<ul style="list-style-type: none"> ▪ Roadmap for key initiatives 	<ul style="list-style-type: none"> ▪ Launch of existing key initiatives: INFANTE and SEATECH ▪ Setup of pilot joint key initiatives: ARMADA ▪ Preparation of joint key initiatives like LIAISE and Joint 4D Mission 	<ul style="list-style-type: none"> ▪ Implementation of joint key initiatives
Institutional outreach	<ul style="list-style-type: none"> ▪ High-level support for STARLab in China and in Portugal 	<ul style="list-style-type: none"> ▪ Presentation of STARLab as a European Research Institution 	<ul style="list-style-type: none"> ▪ Integration of STARLab in European R&D consortia

Article 8 - Funding

1. STARLab will be jointly funded by Portugal and China.
2. Since STARLab has a strong focus on science and research, in the initial phases of operation it requires mostly funding from public sources.
3. STARLab funding is expected to have two components: base funding and project funding.
4. **Base funding** for STARLab will be requested to entities both in China and in Portugal, such as the FCT in Portugal and the International Cooperation Bureau of CAS, as a complement to the partners' funding. This funding would support:
 - a) **STARLab's establishment**, considering initial facilities, equipment, initial team, office running, support to non-resident team members and travelling;
 - b) **Scientific research activities**, on the implementation of small scientific projects and upgrade and revision of the scientific research agenda;
 - c) **Networking** for technological and engineering research agendas; and

- d) **Short and small research activities** to accelerate proofs of concept and support large project definition.
5. **Project funding** is expected to become available through existing instruments, on a competitive basis, from a variety of sources, such as FCT, ANI (Portuguese Agency for Innovation) through dedicated or general calls, as well as from European R&T Framework Programmes (like H2020), the European Space Agency or other programmes; from the Directorate-General for Major R&D Programmes of CAS; from the Chinese Ministry of Science and Technology; and from the Chinese National Space Agency, among others.

Signed in Lisbon, 5th, December 2018, on in two original, each in the Portuguese, Chinese and English languages, all texts being equally authentic. In case of conflict or disagreement, the English version shall prevail.

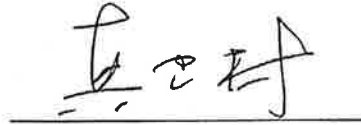
STARLab members:

Portuguese members

Chinese members



Ricardo Mendes
Co-founder & CEO
TEKEVER



Jiancun GONG
Director
IAMC-SECM, CAS

António Cunha
Member of the Board
CEIIA

Fan WANG
Director
IOCAS

