

# **SOCIB**

## **BALEARIC ISLANDS COASTAL OBSERVING AND FORECASTING SYSTEM 2021-2024 STRATEGIC PLAN**



# **ICTS SOCIB 2021-2024 STRATEGIC PLAN**





Balearic Islands Coastal Observing and Forecasting System (SOCIB)  
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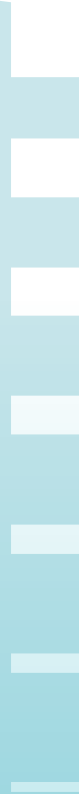


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# **EXECUTIVE SUMMARY**



The ICTS SOCIB 2021-2024 Strategic Plan follows the international framework for Ocean Observing and Forecasting Research Infrastructures and the guidelines and instructions from the Advisory Committee on Unique Infrastructures (CAIS). The procedure followed has been participatory, with the direct and active involvement of SOCIB personnel from all Facilities and Services. The four-year strategic plan for SOCIB sets forth the next chapter in our continued growth, focusing on six strategic objectives: (1) Enhance ICTS SOCIB's ocean observing and forecasting capacities and reinforce Competitive Open Access; (2) Boost the visibility, accessibility, and usability of oceanographic data; (3) Promote social, economic, and environmental impact through value-added ocean products and services; (4) Support and contribute to excellence in marine and coastal research at the regional, national, and international levels; (5) Encourage society engagement and promote Ocean Literacy; and (6) Improve and strengthen the functioning and organizational structure of ICTS SOCIB.

We first revised the mission, vision, and principles for SOCIB, along with its related activity and corporate culture in section 2, and carried out a detailed SWOT analysis of SOCIB that is presented in section 3. As a result of all this, in section 3.5, we present the 6 general objectives that are followed by 24 strategies (section 3.6.) defined to reach these objectives and 96 derived actions (section 4), including a timetable (section 5). Likewise, 157 indicators and 112 expected key results or outcomes are proposed (section 6) for the specific actions enabling a continuous and effective evaluation and monitoring. Finally, section 7 presents the resources needed, including a detailed investment plan.

## ICTS SOCIB 2021-2024 STRATEGIC PLAN

### SWOT ANALYSIS

**Strengths**  
**Weaknesses**  
**Opportunities**  
**Threats**

### ORGANISATIONAL CULTURE

**Mission**  
**Vision**  
**Principles**

### 6 OBJECTIVES

- 1** Enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access
- 2** Boost the visibility and use of oceanographic data
- 3** Promote social, economic, and environmental impacts through added-value ocean products and services
- 4** Support and promote excellence in marine and coastal research at the regional, national and international levels
- 5** Encourage society engagement and promote Ocean Literacy
- 6** Improve and strengthen the functioning and organizational structure of ICTS SOCIB

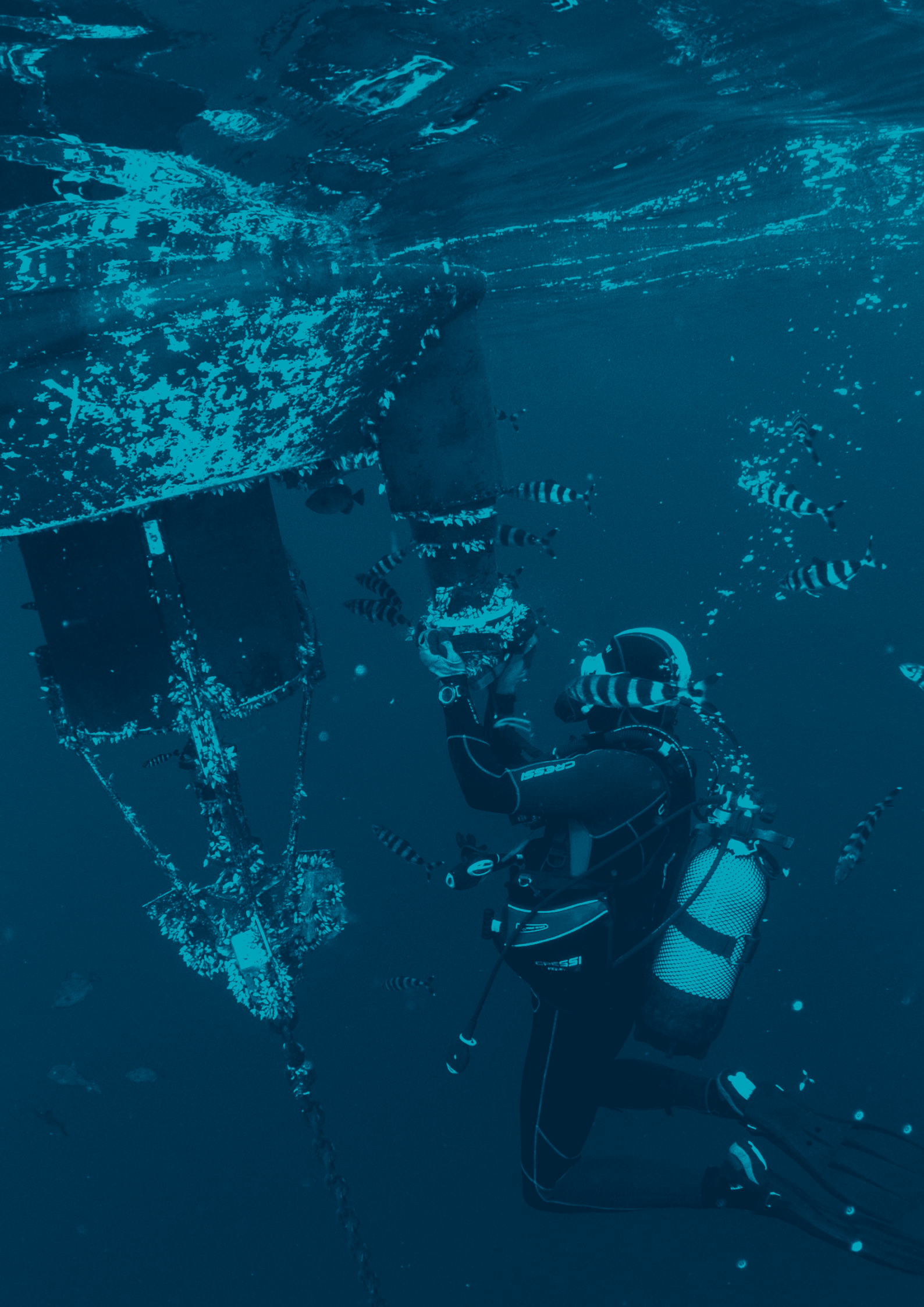
### 24 STRATEGIES

### 96 SPECIFIC ACTIONS

### 157 INDICATORS

### 112 OUTCOMES







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## **SOCIB OVERVIEW**





# 2.1

## PRESENTATION

The Balearic Islands Coastal Observing and Forecasting System (SOCIB) is a Unique Scientific and Technical Infrastructure (ICTS), created by the Spanish Ministry of Education and Science and the Autonomous Community of the Balearic Islands in 2007. In 2020, the CSIC was incorporated into the structure of the SOCIB. Located in Parc Bit, Palma, it has a multidisciplinary team of 50 people with a common goal: to monitor and observe the Mediterranean Sea and to advance in the knowledge, understanding, and sustainable management of the ocean in a context of global change. In order to achieve this, SOCIB operates an observing system that continuously monitors the western Mediterranean, collecting data through multiple platforms including high-frequency coastal radars, comprehensive beach monitoring systems, gliders, Lagrangian observation platforms (ARGO profilers and surface drifting buoys), oceanographic buoys, meteorological and sea-level stations, and the Research Vessel (R/V SOCIB). The data collected can be accessed in real-time and in open access through the SOCIB website (<https://socib.es/>). As ICTS, it offers competitive access to the R/V SOCIB, the glider fleet, and other oceanographic services. Furthermore, through its Responsible Research and Innovation (RRI) strategy, it encourages open access to its scientific and technical production and the transfer of knowledge, thus facilitating the application of its capabilities in R&D&I, connecting with researchers, marine and maritime end-users, decision-makers, companies, and citizens. To do this, it designs and implements viewers, warning and prediction systems, applications, etc., among other oceanographic products, to promote evidence-based marine and coastal management and support the blue economy. In addition, SOCIB works towards accelerating a shift in ocean literacy in Spanish culture, through activities and resources for all audiences. In line with scientific, environmental, and social priorities, SOCIB frames its strategic activity in the ICTS SOCIB 2021-2024 Strategic Plan, which represents the institution's roadmap and commitments.

# 2.2.

## PRINCIPLES, MISSION, AND VISION

### PRINCIPLES

The current guiding principles of ICTS SOCIB are:

1. Manage a multi-platform, integrated, and sustained observing and forecasting system, providing open access data from the coast to the open ocean to understand the variability of the Mediterranean Sea and offer better forecasts and products.
2. Provide, as ICTS, competitive open access to the Research Vessel (R/V SOCIB), glider fleet, and oceanographic instrumentation, to the scientific, technological and industrial community, offering expert advice from decision making to operation.
3. Promote and support scientific excellence and high-impact scientific production, without losing sight of the transfer of knowledge and its applicability in response to the social, environmental, and economic needs of Balearic society, in particular, inserting knowledge in the social value chain.
4. Train and inspire researchers at all stages of their careers and attract talent.
5. Offer our capabilities and expert advice to companies, administrations, and public managers with independence and transparency and with a clear vocation of public service, in relation to strategic issues such as the variability of marine ecosystems, coasts, and beaches; ocean health, resilience, and adaptation to climate change; real-time response in the coastal ocean, operational oceanography and the sustainable management of marine and coastal resources based on science.
6. Offer SOCIB intellectual property in open access, including publications, data, software, and informational resources.
7. Design oceanographic products and services in response to scientific, environmental, and social needs.
8. Promote Ocean Literacy and marine environmental awareness among the general public and, in particular, in the educational community.

### MISSION

To operate a coastal ocean observing and forecasting system, a scientific and technological infrastructure that provides free, open, quality controlled and timely streams of oceanographic data, in order to:

1. Support research and innovation development on key internationally established topics such as: the role of the ocean in the climate system at an inter-annual scale, the interaction between currents and eddies, addressing vertical exchanges and physical and ecosystems variability, the variability in nearshore morpho-dynamics and the sea level variability in response to climate change.
2. Support (on a longer term) strategic needs from society in the context of global change: sustainable management, science-based mitigation and adaptation strategies and also policy development and operational tools for decision support.

3. Consolidate operational oceanography in the Balearic Islands, in Spain and Europe, contributing to the establishment of a well-structured center of excellence in an international frame.

## VISION

To become a strategic marine infrastructure/oceanic observatory in the field of marine R&D&I, nationally and internationally recognized in the observation of the Mediterranean Sea and the global ocean, which contributes decisively to the promotion of marine and oceanographic research, in response to the economic, social and environmental needs that arise from the global challenge of preserving a healthy and productive ocean.

## 2.3.

**ACTIVITY**

As a publicly owned Unique Scientific and Technical Infrastructure (ICTS), SOCIB is open to competitive access by users from the research community, both in public and private sectors. SOCIB activity is grouped into seven main axes or **specific missions**.

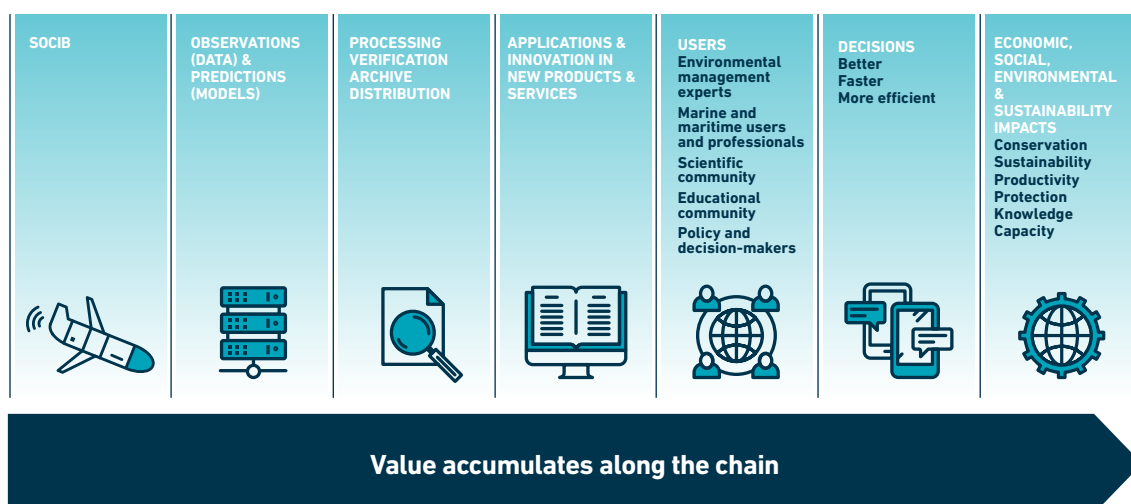
**SOCIB: OCEAN OBSERVING VALUE CHAIN**

Figure adapted from Hodgson - Johnston, 2016.

**2.3.1. Ocean Observing and Forecasting Facilities**

As an Ocean Observatory, SOCIB operates a multiplatform observing and forecasting system that continuously and sustainably monitors the western Mediterranean Sea. This system includes surface drifting buoys (8 SVP surface drifting buoys per year), profilers (3 Argo-type profilers per year within the framework of the European Euro-Argo ERIC Consortium), 16 coastal stations installed in different ports and/or coastal areas along the Balearic Islands, 2 Met-Ocean buoys installed in the Ibiza Channel and the Bay of Palma, a 24-meter long Research Vessel (R/V SOCIB), 2 coastal High-Frequency (HF) radar stations that continuously monitor surface currents in the Ibiza Channel, a fleet of 7 gliders, and 2 beach monitoring systems.

As ICTS, SOCIB also offers competitive access to the scientific, technological and industrial community to the R/V SOCIB and the glider fleet, in addition to offering comprehensive oceanographic services, providing expert advice from decision making to operation.

**2.3.2. Free and Open Mediterranean Sea Data**

SOCIB obtains oceanographic (seawater temperature and salinity, wave, or current speed) and meteorological (atmospheric pressure, wind speed, or air temperature) data through various observation

platforms and satellites. These data enable to know the marine currents and to determine the distribution of phytoplankton, the dispersion of larvae, plastic accumulation zones, or oil spill trajectories, among others. SOCIB guarantees real-time open access to the information collected to all stakeholders: researchers, managers, marine and maritime end-users and professionals, and the general public. SOCIB processes, verifies, distributes, and archives this data, guaranteeing compliance with international standards to ensure quality and interoperability in data management, in line with the [FAIR Principles](#) to make scientific data Findable, Accessible, Interoperable, and Reusable. The combination of different sources and types of information (time series, profiles, trajectories, grids/meshes, images, acoustic data, etc.) requires adequate methods to collect, catalog, display and distribute this information. Therefore, SOCIB works to provide users with a system for display and downloading the data of interest, aimed at easily viewing and managing the information.

### 2.3.3. Transfer of Knowledge: Oceanographic Products and Services

Through a Responsible Research and Innovation (RRI) strategy, SOCIB promotes the transfer of knowledge for the benefit of society, facilitating the use, application, and exploitation of the knowledge and data generated, while responding to economic, environmental, and social needs. Thus, SOCIB actively connects research with marine and maritime end-users, decision-makers, and citizens; integrating its R&D&I capabilities in the value chain. To do this, SOCIB designs and implements models, tools, diagnostics, viewers, early warning systems, applications, and other products to promote marine and coastal management based on scientific evidence. Furthermore, SOCIB supports the blue economy, making it compatible with the sustainability of marine resources.

### 2.3.4. Scientific Production

In addition to supporting marine research, being a marine ICTS and [observatory](#), SOCIB's research is framed in the fields of physical and operational oceanography and is organised around three key themes:

- > Variability in the ocean and the coast, the relationship with the variability of climate change, human pressure and global change.
- > Variability of marine ecosystems, coasts and beaches, ocean health, resilience and adaptation to climate change.
- > Response in real-time in the coastal ocean, operational oceanography and knowledge-based management services.

The location of the SOCIB in the center of the western Mediterranean gives it a strategic position for the research of oceanographic phenomena, not only at a regional scale, but also at a global scale, as the Mediterranean is considered by the scientific community as a [small-scale natural laboratory](#), and is also one of the biodiversity hotspots in the ocean.

### 2.3.5. Advice to Society

SOCIB aims to maximize the social, economic, and environmental impact and value of its sustained time series, high-quality coastal and ocean observations and predictions through the delivery of value-added ocean products and services, such as data services and targeted decision support tools.



SOCIB provides experts to public and private organizations that require it in very different matters, both at national and international levels, from Public Administrations to Boards of Trustees, Foundations, etc. Expert advice ranges from identifying economic, social and environmental needs of society from public and private sectors, to developing marine and oceanographic products to promote decision support tools based on outstanding research; and providing high-quality services towards a sustainable management, science-based mitigation and adaptation strategies and also policy development in a context of global change, among others.

SOCIB's expert staff opinion is crucial in global scientific development, especially in matters related to the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), and the achievement of the 2030 Agenda Sustainable Development Goals (SDG) 13 "Climate Action" and 14 "Life below water".

### **2.3.6. Training**

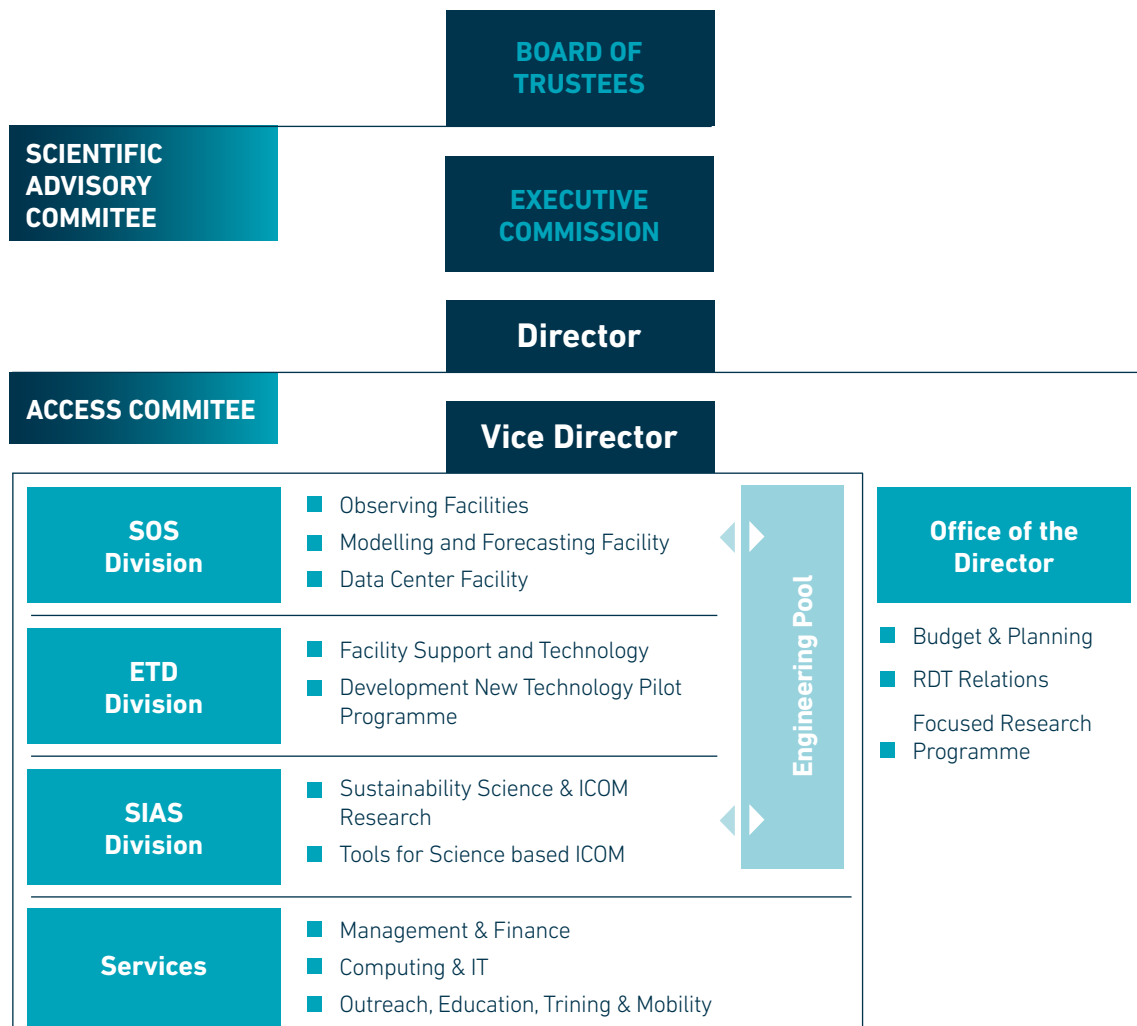
SOCIB trains future generations of oceanographers, offering a solid foundation to develop a career in marine sciences and technologies through the direction of doctoral theses, in collaboration with universities such as the Universitat de les Illes Balears (UIB) and other research centres such as the Mediterranean Institute for Advanced Studies - IMEDEA (CSIC-UIB). SOCIB also provides training to undergraduate students, as well as guidance and support for the completion of Bachelor's and Master's degree final projects related to marine sciences and technologies. In addition, SOCIB offers student internship opportunities.

### **2.3.7. Communication, Outreach, Environmental Awareness and Ocean Literacy**

SOCIB works towards accelerating a shift in ocean literacy in Spanish culture. Through activities and resources for all audiences, and especially for the educational community, promotes knowledge about the ocean and its key role on the planet; in addition to highlighting the role of marine sciences and oceanography in ocean conservation and explaining the work of institutions such as marine observatories and infrastructures.

# 2.4.

## ORGANISATIONAL STRUCTURE AND CHART



# 2.5.

## GOVERNANCE

### Governing and administrative bodies

On December 17, 2007, the General State Administration (AGE, in its Spanish acronym), through the Ministry of Education and Science, and the Government of the Autonomous Community of the Balearic Islands (CAIB, in its Spanish acronym) signed an agreement (see [BOE April 5, 2008](#)) for the creation of the Consortium for the design, construction, equipment and operation of the Balearic Islands coastal observing system (SOCIB, in its Spanish acronym). This agreement has been subsequently amended on May 7, 2016, May 28, 2019, and December 15, 2020, establishing a new collaboration (see [BOE January 4, 2021](#)) between the General State Administration and the CAIB through the incorporation of the CSIC into the SOCIB Consortium.

#### SOCIB governing and administrative bodies:

- > The Board of Trustees is the highest governing and administrative body of the Consortium and is composed of three representatives of the AGE-MCIN, three of the CAIB and one representative of the CSIC. Its functions include approving, at the proposal of the Executive Commission, the preliminary draft of the Consortium annual budget, the annual accounts and the accounting clearance of the overdue budget, as well as the Annual Plan of Actions and Projects. The Board of Trustees meets ordinarily twice a year.
- > The Executive Commission is responsible for the monitoring and execution of the activities of the Consortium. It is composed of two members representing the AGE-MCIN, two members representing the CAIB, and one representing the CSIC. Among its competencies is to submit to the Governing Board, for approval, the proposal of the preliminary draft of the Consortium annual, the annual accounts and the settlement of the overdue budget, as well as the proposal of the Annual Plan of Actions and Projects.
- > The Director is appointed by the Governing Board for a determined period, and may be renewed for successive equal or lower periods, complying with the provisions on personnel established in the Article 121 of the Law 40/2015, of October 1, on the Judicial Regimen of the Public Sector, as well as in Article 17 of the Law 14/2011, of June 1, on Science, Technology and Innovation. Among its functions, is to manage the Consortium, as well as to ensure its scientific and technological excellence.

More information on the nature and composition, competencies, meeting regime and procedures of the SOCIB Consortium, see “CAPÍTULO II Órganos de gobierno y administración de los Estatutos del Consorcio para el diseño, construcción, equipamiento y explotación del sistema de observación costero de las Illes Balears”.

#### Advisory bodies

The structure of the SOCIB Consortium is completed with the following advisory bodies:

- > The Scientific Advisory Committee, an advisory body to the Governing Board, provides advice regarding the activities, programmes and scientific and technological plans of SOCIB, in addition to proposing future actions that can improve the quality and scope of its work. It is composed of ten senior scientists of recognized international prestige in the fields related to the activity of SOCIB.

Its members are appointed at the proposal of the member institutions by the Governing Board, which determines its functions and internal functioning.

- The Management Board, which will be constituted at the proposal of the Director of the Consortium, will act as an internal advisory body to the Director. The Management Board, which might meet monthly, will be composed of the Director himself and the heads of the different Divisions and Services of the Consortium.

## 2.6.

### OCEAN OBSERVATION AND FORECASTING RRI

SOCIB is involved in the implementation of the RRI, in line with the Spanish and European objectives defined in the inclusion of the RRI on the [Horizon 2020 'Science with and for Society'](#) programme, which is promoted by the European Commission. In this regard, SOCIB works to effectively connect research and innovation with the sectoral needs of the marine and maritime sector, including programmes to promote ocean literacy. SOCIB actions and activities, research, data, products and services have a transversal RRI strategy, in line with the ['Science with and for Society'](#) programme, fostering: citizen participation, cooperation and dialogue with all the actors involved; open access; gender equality, diversity and inclusion; education and scientific dissemination, also aimed at audiences with diverse abilities; the historical perspective; the local and international dimension; the ethical aspects; and the commitment to a more cooperative, inclusive and reflective governance.

#### 2.6.1. Open Science, Open Data

SOCIB follows the [European Union recommendations](#) and advocates for creating a more open, transparent, collaborative and sustainable global system of scientific communication, pursuing a greater impact and scope of research results and the exploitation of research data. In this context, following the [Spanish State Plan for Scientific and Technical Research and Innovation 2017-2020](#), SOCIB provides open access to the results and research data of its research activities subsidised by public resources, through deposit to repositories, in compliance with the provisions of the [Article 37 of the Law 14/2011, of June 1, on Science, Technology and Innovation](#), and the recommendations related to the [European Open Science Agenda](#). Likewise, as a consortium with the participation of the CSIC, SOCIB aligns itself with the CSIC mandate of open access (through [DIGITAL.CSIC](#)) that emphasizes the management of research data according to the internationally recognized [FAIR principles](#). This mandate connects with SOCIB's institutional commitment to provide open access through [www.socib.es](#) to the results of scientific and technological research, as well as to data collections and software, also including informative resources.

#### 2.6.2. Scientific Integrity and Good Practises

SOCIB adheres to the [Code of Good Scientific Practices of CSIC](#), promoting and guaranteeing the integrity and quality of the scientific research, and of the data and products provided. Likewise, SOCIB aligns itself with the research activity ethical principles and professional responsibilities of

the [Spanish National Declaration on Scientific Integrity](#), fostering and promoting ethical behaviour, in general, and responsible research based on [good scientific practices](#) such as the guarantee of offering valid, accurate and reliable data, in particular. In addition, SOCIB also works on data policies related to [TRUST principles](#) (Transparency, Responsibility, User Community, and Sustainability, and Technology).

### 2.6.3. Ocean Best Practices

SOCIB promotes best practices as an essential component to its activities to ensure there is consistency in the information that is collected and that the best available practices are followed across the ocean observing value chain, as set out in the [Global Ocean Observing System \(GOOS\) Framework for Ocean Observing](#).

Through the implementation and establishment of best practices, SOCIB ascertains there is reproducibility in its science and interoperability across disciplines and datasets by standardising methods and data collection. Moreover, it enables knowledge transfer and capacity building.

SOCIB methods and best practices are available through the [IOC Ocean Best Practice system](#) – an open access and sustained digital repository of community best practices in all ocean-related sciences and applications.



# 3

## **SWOT ANALYSIS AND STRATEGIES DEFINITION**





This section presents an analysis of the ICTS SOCIB's internal aspects (strengths and weaknesses) and the external situational factors (opportunities and threats), which are considered to be the most relevant for the development of its activity in the coming years. It is based upon the CAIS 11/2018 Evaluation Report, the ISSC 12/2020 Assessment Report, as well as the internal participatory assessment carried out by all ICTS SOCIB team 02/2021.

The SWOT Analysis (see table below) gives rise to the **6 strategic goals, the 24 linked strategies and 96 derived actions proposed in the present Strategic Plan.**

STRENGTHS
S1 High-performing and qualified young staff
S2 Ability to form interdisciplinary scientific, operational, and technical teams
S3 Recognised as a Unique Scientific and Technical Infrastructure (ICTS) / Ocean Observatory
S4 Key scientific location
S5 Recognition of the uniqueness of the SOCIB in the context of Public Administration
S6 Significant competitiveness
S7 Connection and leadership with relevant European and international initiatives and networks
S8 Recognition of the ICTS SOCIB as a prestigious brand
S9 Recognised scientific and technical expert staff
S10 Recognised experience in Ocean Literacy activities
WEAKNESSES
W1 Moderate Competitive Access to unique facilities
W2 Moderate data traceability from data acquisition to end-users
W3 Stagnation in structural funding since 2008
W4 Facilities and equipment need upgrades after 10 years
W5 Lack of a centralised building
W6 Rigid hiring and procurement processes
W7 Stagnant structural scientific and technical staff resulting in a high percentage of project-based personnel
W8 Limited career structure and non-competitive salaries
W9 Limited management training and support staff

**OPPORTUNITIES**

- 01** Reinforcement of ICTS SOCIB's institutional structure resulting from CSIC entrance
- 02** Collaborative environment of Pol Marí and headquarters in the Port of Palma
- 03** Collaboration with the university environment
- 04** Increase in private funding
- 05** Strengthening of European and international research programmes
- 06** Collaborative research environment
- 07** UN Decade For Ocean Sciences framework
- 08** Growing social interest in marine sciences

**THREATS**

- T1** No current vessel access mechanisms for National Competitive Science Plan programmes
- T2** Difficult gliders access mechanism for National Competitive Science Plan projects
- T3** Reduction in finance from public sources
- T4** Public Administration management procedures frustrate ICTS SOCIB's relation with other organisations
- T5** Evolution of R&D+i policies
- T6** Potential impacts of global crisis on research
- T7** Fast global IT evolution
- T8** Rising user expectations

## 3.1.

**STRENGTHS (INTERNAL FACTORS)****S1. High-performing and qualified young staff**

The high level of qualification and performance of the ICTS SOCIB scientific, operational, technical, and administration staff stands out at the national and international level, as evidenced by its leadership in multiple projects and national and international consortiums, as well as in the activities of technology transfer and ocean literacy. This entails a very remarkable level of professional demand, accompanied in addition by a culture of multidisciplinary that results in a dynamic and flexible staff. Furthermore, the average age of the staff is about 35 years, which results in fresh ideas and enhances modern developments and methods.

## **S2. Ability to form interdisciplinary scientific, operational, and technical teams**

ICTS SOCIB has a strong multidisciplinary potential, bringing together scientific, operational, technical, and administrative staff in broad and different scientific areas that allow interdisciplinary research to be carried out and to address frontier issues. The synergy between the different centers and institutes with which it collaborates allows participation in new challenges.

## **S3. Recognised as a Unique Scientific and Technical Infrastructure (ICTS) / Ocean Observatory**

ICTS SOCIB has a reference position and established credibility as a Unique Scientific and Technical Infrastructure and an Ocean Observatory of the Balearic Islands, at the regional, national and international levels. It fully operates a complex network of state-of-the-art marine and coastal observing facilities as well as different ocean forecasting systems and scientific equipment, generating open-access, real-time oceanographic data, which allow advancing knowledge of the Mediterranean Sea and the global ocean. Also, it develops, uses and promotes open source solutions' systems and tools (e.g. software) responding to the needs of society in the context of global change, both at regional (Directorate-General for Fisheries, Emergencies, Climate, Ports IB) and national (SASEMAR, PE, CSIC, IEO, etc.) levels, being ahead of time of leading organisations in providing end-user-centered products and services.

## **S4. Key scientific location**

ICTS SOCIB is totally immersed in its primary observing environment, the Balearic Seas. This part of the Mediterranean also presents an ideal 'real-world' laboratory for the study of many ocean processes.

## **S5. Recognition of the uniqueness of the SOCIB in the context of Public Administration**

Although the SOCIB frames its management in the context of Public Administration, its uniqueness is well recognized as a Unique Scientific and Technical Infrastructure (ICTS, in its Spanish acronym).

## **S6. Significant competitiveness**

ICTS SOCIB staff obtain most of their resources for projects in open regional, national and international calls, in constant competition with other institutions.

## **S7. Connection and leadership with relevant European and international initiatives and networks**

ICTS CSIC maintains a very good position in the European and international context of ocean observation, through its participation in and/or leadership in initiatives and networks related to data integration and the development of products aimed at sustainable management (e.g GOOS and EuroGOOS), and initiatives related to operating underwater gliders, and managing data with leadership capacity at an international level (e.g., WP11 JERICO-S3 and WP3 JERICO-DS), among others. In particular, ICTS SOCIB is well positioned in competitive European funded initiatives (obtaining significant returns) such as EuroSea, JERICO-S3, Copernicus INSTAC, EuroArgo Rise, EuroFleet+, etc.

## **S8. Recognition of the ICTS SOCIB as a prestigious brand**

The ICTS SOCIB has established itself as a brand of regional, national and international scientific prestige, and has a significant attraction for external collaboration with strategic stakeholders/partners/key users (e.g. SASEMAR) to develop synergies.

## **S9. Recognised scientific and technical expert staff**

ICTS SOCIB provides experts to public and private organizations that require it in very different matters, both at national and international levels, from Public Administrations to Boards of Trustees, Foundations, Oceanographic Vessels, etc. ICTS SOCIB's expert staff opinion is crucial in global scientific development and has a significant influence on current schools of thought. Especially in matters related to the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), and the achievement of the 2030 Agenda Sustainable Development Goals (SDG) 13 "Climate Action" and 14 ("Life below water").

## **S10. Recognised experience in Ocean Literacy activities**

ICTS SOCIB has a strong experience in marine sciences communication and dissemination and is a national and European renowned leader in promoting ocean literacy to increase the awareness of the public about the ocean, as well as encourage all citizens and stakeholders to have a more responsible and informed behaviour towards the ocean and its resources, while increasing its visibility.

# 3.2.

## **WEAKNESSES (INTERNAL FACTORS)**

### **W1. Moderate Competitive Access to unique facilities**

Moderate competitive access to ICTS SOCIB unique facilities (R/V SOCIB and Glider fleet), at least partially related to COVID-19 breakout. Communication campaigns and coordination with the Agencia Estatal de Investigación and the COCSABO to publicize the competitive accesses, services, infrastructures, data, and products of ICTS SOCIB, can be improved. Furthermore, outsourcing practices and difficulties in the continuity of the R/V SOCIB crew generate management related inconveniences affecting the competitive access.

### **W2. Moderate data traceability from data acquisition to end-users**

The standardization in the integration of data, both internally and at the European level, is moderate. ICTS SOCIB faces difficulties in tracking the use of its data and datasets, as well as their scientific and social impact, since DOIs are not sufficiently implemented, which makes data traceability difficult, from the sensor and the observing platform to the end-user. Furthermore, there is potential for improvement in the visibility of the data and the design of added-value products derived from data.

### **W3. Stagnation in structural funding since 2008**

ICTS SOCIB structural staff and budget are similar to those in 2008 negatively affecting job security (lack of career path, and establishment and consolidation of permanent positions) and the renovation of ICTS SOCIB facilities and equipment.

### **W4. Facilities and equipment need upgrades after 10 years**

After 10 years, many of its facilities and equipment need to be updated to catch up with the new trends in marine technology.

### **W5. Lack of a centralised building**

A new headquarters needs to be built in order to centralise ICTS SOCIB's activity, encouraging greater communication and improving the efficiency of operations.

### **W6. Rigid hiring and procurement processes**

Rigidity both in the bidding processes for the procurement of required services and contracts and in the flexibility to offer attractive contracts to the profiles to be attracted, or to allow public-private collaboration.

### **W7. Stagnant structural scientific and technical staff resulting in a high percentage of project-based personnel**

In a context of scarce resources and limited budget, the proportion dedicated to scientific staff (specially PhD Candidates), operational and technical personnel has been limited. This significantly affects ICTS SOCIB activity, especially its observational programmes (lack of human resources to support operations). Also, research staff devotes a significant portion of working hours to technical related duties affecting its and scientific production. This situation leads also to work overload in operational, scientific, and society activities.

### **W8. Limited career structure and non-competitive salaries**

The limited opportunities for recognised internal career development, and establishment and consolidation of permanent positions, as well as the rigidity in hiring processes (affecting to competitive salaries) results in difficulties to attract and retain talent.

### **W9. Limited management training and support staff**

ICTS SOCIB has limited scientific, operational and technical support personnel that have to devote additional effort in management tasks for which they have not received training. This entails difficulties in planning, organizing, leading, and controlling related tasks that stagnate progress.



# 3.3.

## OPPORTUNITIES (EXTERNAL FACTORS)

### 01. Reinforcement of ICTS SOCIB's institutional structure resulting from CSIC entrance

Since 2021, the SOCIB consortium involves the participation of the Spanish National Research Council (CSIC, in its Spanish acronym), the largest research organisation in Spain that, both by size (more than 11,000 people) and by distribution (it is present in practically all the Autonomous Communities), allows tackling challenges that are generally not available to other institutions. CSIC will contribute to the funding of the new headquarters of the SOCIB Consortium, which is expected to be completed by 2023. Being part of the CSIC also allows ICTS SOCIB to include its scientific production in DIGITAL. CSIC, the CSIC institutional repository that organizes, preserves and gives open access to the research outputs of the CSIC's scientific community.

### 02. Collaborative environment of Pol Marí and headquarters in the Port of Palma

The new ICTS SOCIB headquarters in the Port of Palma in a specialized environment for marine R+D+i (Pol Marí), lead to a greater openness of ICTS SOCIB, as well as new scientific, outreach and social opportunities. Also, it opens up the possibility of collaboration with the Moll Bit, a center for technology transfer and marine innovation in the Port of Palma.

### 03. Collaboration with the university environment

ICTS SOCIB is located in the surroundings of the campus of the University of the Balearic Islands (UIB, in its Spanish acronym), allowing direct interaction with university research groups, and enabling training opportunities for students at the bachelor's or master's levels. It offers the opportunity of reinforcing the structural collaboration with the university environment, strengthening the training of students in internships and collaborating in new Master and Doctorate related activities.

### 04. Increase in private funding

Private research funding is increasing. It is boosted more by partnerships among companies rather than by centrally-funded research programmes, representing an opportunity to offer targeted-oriented products and services for the marine and coastal management sector in the Balearic Islands, in the framework of global change. Likewise, the crisis derived from COVID-19 has led to changes in the interests of the business sector that allow ICTS SOCIB to detect new opportunities for collaboration.

### 05. Strengthening of European and international research programmes

The increase in EU research funding for R&D and innovation, as well as the one derived from the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), open up the possibility of developing ambitious projects, both of excellence (ERC) and in flagships, research infrastructures (such as the R/V SOCIB), or social challenges. ICTS SOCIB, thanks to its interdisciplinary possibilities, is very well positioned to participate in these initiatives. In addition, the European Union

Destination Earth (DestinE) initiative, a key component of the European Strategy for Data, opens up an opportunity to deliver an aligned Digital Strategy (Data Management) contributing to the European Commission's Green Deal and Digital Strategy.

## 06. Collaborative research environment

There is a growing interest from research organisations in increasing collaboration through activity in joint centers or joint projects. This collaboration enables joining forces by strengthening scientific synergies and collaborations with leading organisations (e.g. JERICO-RI), as well as a better understanding of the environmental, social and economic dimensions of ocean management in the context of global change. The increase in scientific collaboration with marine research institutions at local, regional, national and international level demand expert advice from ICTS SOCIB, the exchange of researchers, participation in training programmes or the establishment of new agreements and relationships, strengthen the presence of ICTS SOCIB while consolidating relations with peers. It also entails further opportunities for sharing open data and open publications, and providing outputs such as open code, the use of collaborative platforms between scientists and "citizen-science" initiatives.

## 07. UN Decade For Ocean Sciences framework

The United Nations Decade of Ocean Science for Sustainable Development (2021-2030) will provide a unifying framework across the UN system to enable countries to achieve all of their ocean-related Agenda 2030 priorities. This can be taken advantage of by ICTS SOCIB enhancing international visibility and cooperation as well as funding opportunities. ICTS SOCIB mission, vision, objectives and strategies are clearly in line with these priorities.

## 08. Growing social interest in marine sciences

There has been increased interest and social and political awareness in marine sciences and conservation, in the context of the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), at local, regional, national and international levels. This can be taken advantage of by ICTS SOCIB bringing together and involving different groups in marine sciences (e.g. European networks such as JERICO-RI and EuroSea) through multiple citizen blue economy and social participation initiatives. This will contribute to address the need for sustainable management of marine and coastal resources.

# 3.4.

## THREATS (EXTERNAL FACTORS)

### T1. No current vessel access mechanisms for National Competitive Science Plan programmes

Difficulty in getting a response from the Public Administration in relation to the use of the R/V SOCIB by the IEO, despite the demands of its researchers. The management of the National Plan marine projects and the MICIN oceanographic fleet affects access to the R/V SOCIB.

## **T2. Difficult gliders access mechanism for National Competitive Science Plan projects**

The management of the National Plan marine projects affects access to the Glider fleet.

## **T3. Reduction in finance from public sources**

Political, economic, and social instability and changes may result in a decrease in public funding (including structural funding), change of data requirements, and expectations. It could also lead to a substantial increase in regulatory compliance.

## **T4. Public Administration management procedures frustrate ICTS SOCIB's relation with other organisations**

The management procedures are framed in the context of the Public Administration, and although ICTS SOCIB enjoys certain flexibility in some circumstances, in general they are not adapted to the context of current research, especially when compared with other organisations with which it must compete at the international level.

## **T5. Evolution of R&D+i policies**

The guidelines of the programmes and calls aimed at certain lines of national and international programmes, especially European ones, and their financial impact, may affect the orientation of the ICTS SOCIB's own research lines and limit its scientific strategy.

## **T6. Potential impacts of global crisis on research**

Impacts derived from global crisis (e.g. COVID-19) on research activities may have adverse effects on the team's work (e.g. delays in the scheduling of many research projects, teleworking measures, isolated staff, etc.).

## **T7. Fast global IT evolution**

Dependence on ongoing technology changes, both for scientific equipment and ITS equipment, and need to keep investment high to keep pace.

## **T8. Rising user expectations**

Users have developed expectations for near-immediate access to vast data sets.

# 3.5.

## STRATEGIC OBJECTIVES

ICTS SOCIB's objectives derived from the SWOT analysis to work toward the mission and vision over the next four years are:

### **1. Enhance ICTS SOCIB's ocean observing and forecasting capacities and reinforce Competitive Open Access**

ICTS SOCIB aims to enhance and consolidate the multi-platform and integrated observing and forecasting facilities generating open-access real-time and quality controlled data, which address international scientific priorities and respond to societal needs. Furthermore, it aims to reinforce the Competitive Access to the glider fleet and to R/V SOCIB<sup>1</sup> by the scientific, technological, industrial community and administrations, following the established criteria of excellence and scientific and technical feasibility.

### **2. Boost the visibility, accessibility, and usability of oceanographic data**

ICTS SOCIB aims to make oceanographic data, products and services and their dissemination available (visible, accessible, and usable) to any member of an inquiring society, from professionals to citizens, impinging on principles of scientific growth and public access including practices such as publishing open research, with the ultimate aim of making it easier to share scientific knowledge.

### **3. Promote social, economic, and environmental impact through value-added ocean products and services**

ICTS SOCIB aims to maximize the social, economic, and environmental impact and value of its sustained time series, high-quality coastal and ocean observations and predictions through the delivery of value-added ocean products and services, such as data services and targeted decision support tools.

### **4. Support and contribute to excellence in marine and coastal research at the regional, national, and international levels**

ICTS SOCIB aims to support and contribute to scientific excellence and deliver results in terms of research productivity in the study of marine ecosystems, ocean health and variability, and operational oceanography; critical leading research topics. This will be achieved through building solid relationships with stakeholders and the society as a whole, at regional, national, and international levels, to maintain its reputation of excellence.

### **5. Encourage society engagement and promote Ocean Literacy**

ICTS SOCIB aims to build on its tradition of innovative communication activities, providing information on and generating interest in its science, facilities, services, and products with a focus on providing opportunities for interaction. Its ultimate goal is to reach out to our different publics, engage with

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1. As part of ICTS FLOTA

them, and ultimately cultivate long-lasting relations based on mutual interest and benefits, foster public recognition of the relevance of ocean observatories and marine environmental education.

## 6. Improve and strengthen the functioning and organizational structure of ICTS SOCIB

ICTS SOCIB aims to provide a strategic fit between ICTS SOCIB's internal capabilities and the shift in the external environment by implementing a strong organizational culture and opportunities for staff development, helping employees to work better, smarter and to share talents, skills, and data on the way.

# 3.6.

## STRATEGIES AND SWOT ANALYSIS

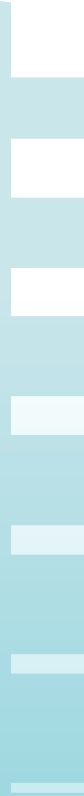
In order to envision the ICTS SOCIB's strategic objectives and reach them, the infrastructure will develop the following 24 strategies-lines of action- (see table below).

OBJECTIVES	STRATEGIES
<b>1. Enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access</b>	1.1. Update and maintain existing observing and forecasting capabilities
	1.2. Expand and enhance observing and forecasting capabilities
	1.3. Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet
<b>2. Boost the visibility, accessibility and use of oceanographic data</b>	2.1. Improve an oceanographic data management programme: integrated and standardized data
	2.2. Obtain quality brands and trust seals in oceanographic data
	2.3. Align ICTS SOCIB's data policy with the International Open Data and Open Science mandates
	2.4. Reinforce monitoring impact, traceability, and continuous evaluation of the usage of oceanographic data and other resources of ICTS SOCIB
	2.5. Develop a Digital Strategy applying sustainable and smart solutions to oceanographic data
	2.6. Integrate and distribute ICTS SOCIB's oceanographic data

OBJECTIVES	STRATEGIES
<b>3. Promote social, economic, and environmental impacts through added-value ocean products and services</b>	3.1. Reinforce a Responsible Research and Innovation (RRI) Strategy
	3.2. Promote the restructure of SIAS Division
	3.3. Update ICTS SOCIB's oceanographic products and services
	3.4. Develop new ICTS SOCIB's oceanographic products and services
<b>4. Support and promote excellence in marine and coastal research at the regional, national and international levels</b>	4.1. Strengthen strategic collaborations in research and innovation at the regional, national and international levels
	4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography
	4.3. Promote the development and adoption of Ocean Best Practices (OBS)
	4.4. Stimulate training of new generations of oceanographers and technicians
<b>5. Encourage society engagement and promote Ocean Literacy</b>	5.1. Foster Ocean Literacy, public recognition of ocean observatories, and marine environmental education
	5.2. Enhance participation in Citizen Science projects
	5.3. Grow brand awareness, find and engage the target audience
<b>6. Improve and strengthen the functioning and organizational structure of ICTS SOCIB</b>	6.1. Renew the structure, organizational chart, and internal functioning of ICTS SOCIB
	6.2. Implement strategic human resources planning
	6.3. Strengthen the ICTS SOCIB brand identity
	6.4. Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society

These specific strategies address the results of the ICTS SOCIB's SWOT analysis in the following way (see table below).

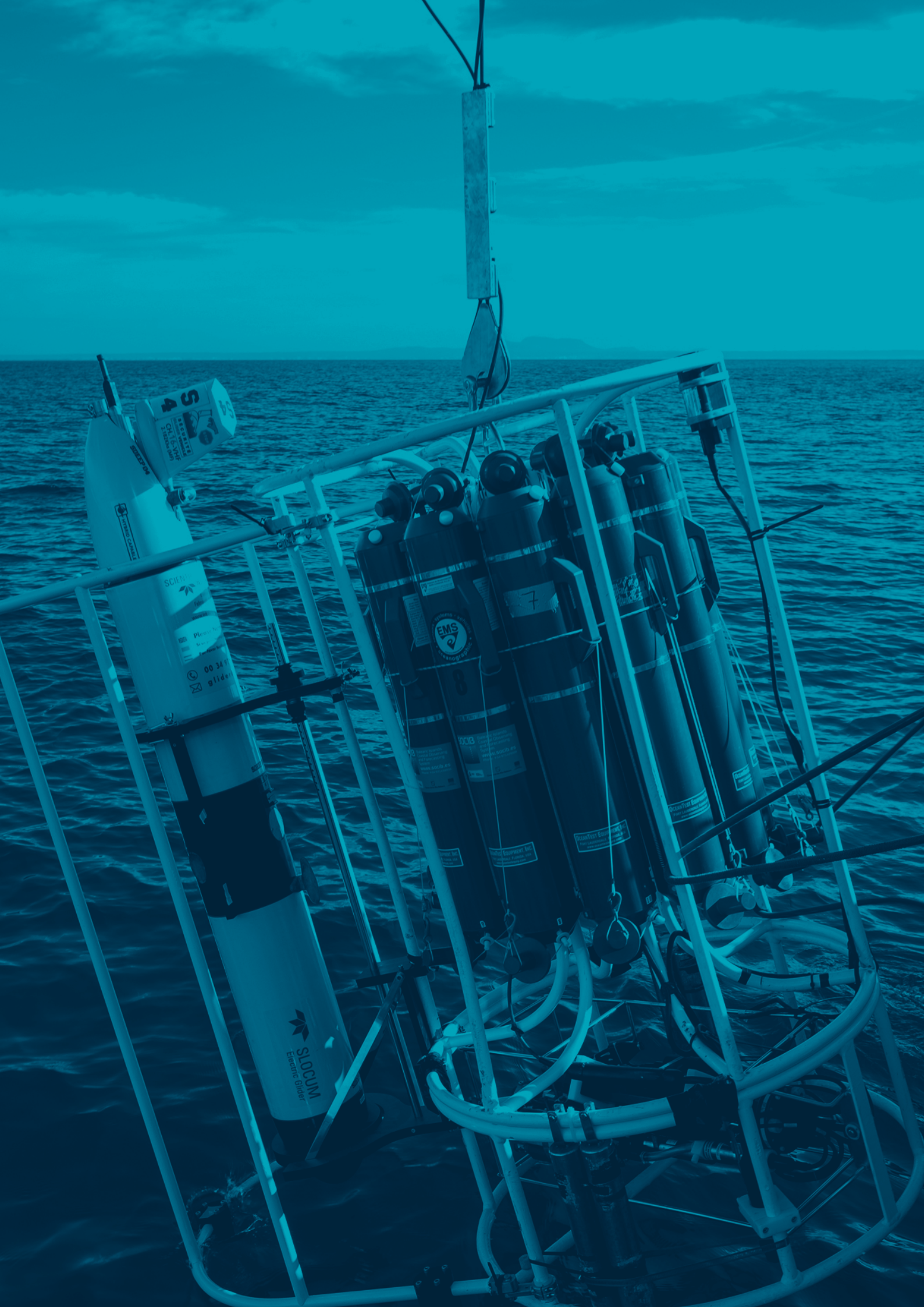
2021-2024 SP STRATEGIES	TAKING ADVANTAGE OF ITS OPPORTUNITIES	FACING ITS THREATS
<b>BASED ON ICTS SOCIB's STRENGTHS</b>	1.2. Expand and enhance observing and forecasting capabilities	3.1. Reinforce the Responsible Research and Innovation (RRI) Strategy
	2.6. Integrate and distribute ICTS SOCIB's oceanographic data	4.3. Promote the development and adoption of Ocean Best Practices (OBS)
	3.2. Promote the restructure of SIAS Division	5.1. Foster Ocean Literacy, public recognition of ocean observatories and marine environmental education
	3.3. Update ICTS SOCIB oceanographic products and services	5.2. Enhance participation in Citizen Science projects
	3.4. Develop new ICTS SOCIB oceanographic products and services	5.3. Grow brand awareness, find and engage the target audience
	4.1. Strengthen strategic collaborations in research and innovation at the regional, national and international levels	6.3. Strengthen the ICTS SOCIB brand identity
<b>TAKING INTO ACCOUNT ITS WEAKNESSES</b>	1.1. Update and maintain existing observing and forecasting capabilities	2.2. Obtain quality brands and trust seals in oceanographic data
	1.3. Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet	2.3. Align ICTS SOCIB's data policy with the International Open Data/ Open Science mandates
	2.1. Improve the oceanographic data management programme: integrated and standardized data	2.5. Develop a Digital Strategy applying sustainable and smart solutions to oceanographic data
	2.4. Reinforce monitoring impact, traceability, and continuous evaluation of the usage of oceanographic data and other resources of ICTS SOCIB	4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography
	4.4. Stimulate training of new generations of oceanographers and technicians	
	6.1. Renew the structure, organizational chart, and internal functioning of ICTS SOCIB	
	6.2. Implement strategic human resources planning	
	6.4. Break-ground for the new ICTS SOCIB headquarters: open up to Balearic Islands society	



4

**STRATEGY  
DEVELOPMENT  
(ACTION PLAN)**





Based on the objectives identified and the SWOT analysis carried out, ICTS SOCIB's strategy for the period 2021-2024 will be structured into 96 specific actions related to each strategy. The implementation of these actions is key to ensure effective compliance with the Action Plan. See tables below.

# 4.1

## SPECIFIC ACTIONS ADDRESSING OBJECTIVE 1

### Objective 1: enhance ICTS SOCIB's ocean observing and forecasting capacities and reinforce competitive open access

#### Strategy 1.1. Update and maintain existing observing and forecasting capabilities

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>1.1.1. Update and maintain Glider fleet.</b></p> <p>It is essential to update the ICTS SOCIB's Glider fleet to sustain the existing endurance glider line and increase the glider missions in the two quasi-endurance lines in the western Mediterranean Sea. Also, new areas are needed to enhance our understanding of mesoscale and submesoscale circulations. Gliders are the ideal platforms to connect the coastal zone with the open waters as they can provide new insights into the physical and biogeochemical interaction on the shelf. Maintaining gliders for long periods in the ocean 'key choke' points will establish the regional effects of climate variability in thermohaline driven circulation. In addition, ICTS SOCIB will develop indices for the regional climate variability and provide high-quality observations for better marine forecasting.</p>	Advance glider technology as marine ecosystem sentinels	(1) Number of gliders available (2) Number of missions performed (3) Number of days of glider operations (4) Number of nautical miles flown (5) Total number of CTD profiles

**Strategy 1.1. Update and maintain existing observing and forecasting capabilities**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>1.1.2. Upgrade and maintain R/V SOCIB monitoring system.</b> ICTS SOCIB will maintain and upgrade the R/V SOCIB observing monitoring system to ensure the continuity of the long-term EOVs data set for the Western Mediterranean.</p> <p>1) R/V SOCIB requires a fully operational network connected underway thermosalinograph capability including a fluorometer. An upgrade is needed.</p> <p>2) A CDOM sensor is required for the lowered CTD for inter-calibration of Glider CDOM sensors.</p> <p>3) Purchase a uCTD with multidisciplinary Biogeochemical/CTD fall probes. This will expand its capacity to make measurements between axillary stations such as those now routinely made for plastics sampling.</p> <p>4) Purchase a towfish mounted multi-frequency fish finding towed echo-sounder (current state-of-the-art SimRad EK80), with 38 and 200 kHz transducers, possibly a third, to support plankton research and monitoring objectives. This capability will also significantly increase the demand for Open Access and TNA to R/V SOCIB.</p>	100% sensors/ instruments implemented on board	<p>(1) Volume data of new sensors</p> <p>(2) Number of EOVs and/or supporting and derived variables</p> <p>(3) Number of uCTD data</p> <p>(4) Volume of TA for the R/V SOCIB</p>
<p><b>1.1.3. Update and maintain Fixed Stations.</b> Getting real time data 24/7 from Fixed Stations requires sound operation of sensors, instruments and data communication. To ensure the continuity of already existing time series as well as the implementation of new sensors with capabilities of recording a wide range of parameters will require continuous replacement of obsolete components. Furthermore, regular updates regarding new technologies and innovations on the sensor market are continuously implemented. Also, ICTS SOCIB plans to offer the Fixed Stations as test sites for open access (see 1.3.4.)</p>	<p>Maintain all 17 Fixed Stations fully operational (100% - 24/7)</p> <p>Implement a new remote management system for data acquisition and real time control</p>	<p>(1) Number of operational days per station per year</p> <p>(2) Volume of data acquired</p> <p>(3) Number of stations renewed</p> <p>(4) Number of new instruments acquired</p> <p>(5) Number of data and stations' reports</p>
<p><b>1.1.4. Maintain the lagrangian platforms fleet.</b> ICTS SOCIB will maintain an active lagrangian platforms fleet composed of 8 surface drifters and 5 profilers, to ensure the continuous observation capability. To achieve this goal and due to the lifetime of these lagrangian platforms it will be necessary to purchase and deploy 8 surface drifters and 3 floats, per year. In this way ICTS SOCIB will meet its commitment (number of deployments per year) as part of the Global Drifter Program (GDP) and EuroArgo-ERIC.</p>	Deployment of 8 surface drifters and 3 profilers per year	<p>(1) Number of surface drifters deployed per year</p> <p>(2) Number of profilers deployed per year</p> <p>(3) Number of active surface drifters per year</p> <p>(4) Number of active profilers per year</p> <p>(5) Number of days of data (surface drifters)</p> <p>(6) Number of vertical profiles per year</p> <p>(7) Number of days of profilers observation</p>

**Strategy 1.1. Update and maintain existing observing and forecasting capabilities**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>1.1.5. Update and maintain HF Radar capabilities</b></p> <p>Addressing the HFR infrastructure aging that could severely impact the operations and its sustainability, ICTS SOCIB will acquire 1 CODAR SeaSonde Combined antenna transmitting at 13.5 Mhz, 1 Front panel board of the transmitter to be available, together with the AWG-III module, as hot spares, allowing a more rapid replacement in case of failure, thus minimizing downtime and ensuring the continuous operation. Furthermore, the SeaSonde software will be upgraded for the radial sites and for the central station, which includes updated viewer interfaces, robust data access, new radial web servers, and improves the wave processing and quality control. This will also foster the retrieval of HFR derived wave parameters over the HFR footprint (e.g. significant wave height, centroid period and wave direction). Additionally, the most updated version of the AIS auto-APM software and associated hardware will be acquired and installed in the HFR-Ibiza radial sites to automatically and continuously monitor, report and generate the Antenna Pattern Measurement based on AIS (Automatic Identification System) information.</p>	<p>Maintenance of the HFR system operation, availability and readiness at optimal levels of performance, ensuring the continuity and the quality of the surface current measurements.</p> <p>Compatibility of the CODAR SeaSonde software with the hardware that is currently available (with the new ARM-based processors).</p>	<p>(1) % time in operation along the period &amp; since ever</p> <p>(2) Number of days in operation along the period/ever</p> <p>(3) % area coverage</p> <p>(4) Number of deployments</p> <p>(5) Number of on-site visits for maintenance</p> <p>(6) Number of QulDs automatic reports</p> <p>(7) Number of models assimilating the HFR-Ibiza data</p> <p>(8) Number of models validated against HFR-Ibiza at operational basis</p> <p>(9) Number of public/private institutions integrating HFR-Ibiza data at operational basis</p> <p>(10) Number of services including the HFR-Ibiza data</p> <p>(11) Increase in the number of EOVs</p> <p>(12) Number of ICTS SOCIB data products</p>
<p><b>1.1.6. Update and maintain Beach Monitoring systems.</b></p> <p>ICTS SOCIB will foster the renovation and maintenance of the current Beach Monitoring stations infrastructure, field, and laboratory instruments to ensure the continuity of the unique long-term dataset of beach morphodynamic processes in the Balearic Islands. In addition, upon evaluation of the success of the RaspPiCam systems as beach monitoring remote sensing methods, it will implement a low-cost easy-to-deploy system, in contrast to the current world-wide used video-monitoring systems. The RaspPiCam test will account in a first approach with the deployment of a single RaspPiCam at Cala Millor Video-monitoring station. Results from RaspPiCam will be checked with the current video-monitoring system in terms of image rectification and shoreline extraction. Quality and error of results will be key to further implement the system in the current stations.</p>	<p>Ensure the continuity of the unique long-term dataset of beach morphodynamic processes in the Balearic Islands and provide a low-cost easy-to-deploy system</p>	<p>(1) Number of stations renewed</p> <p>(2) Number of new instruments acquired</p>



**Strategy 1.1. Update and maintain existing observing and forecasting capabilities**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>1.1.7. Update and maintain hydrodynamic modelling and prediction capabilities.</b> The WMOP hydrodynamic modelling system will be maintained and continuously updated during the next evaluation period. This includes model configuration updates (boundary conditions, surface forcing, model parameters, vertical discretization, and bathymetry) and data assimilation aspects (new observations incorporated in the system, optimization of data assimilation windows and procedures, computing time optimization using code parallelization). The monitoring system allowing to quickly detect and correct failures in the operational chain will also be updated.	Up-to-date system with capacities for operational predictions and reanalysis.  Efficient monitoring system to detect system failures.	(1) Number of days of WMOP model predictions and reanalysis
<b>1.1.8 Update and maintain “rissaga” modelling and prediction capabilities.</b> The BRIFS prediction system will be updated following the changes imposed by the external large scale atmospheric model used to initialize the predictions. The model validation will be enhanced including comparisons with Geonica tide gauge in cases of failure of the ICTS SOCIB bottom gauge installed in Ciutadella. The real-time monitoring of the BRIFS system will also be updated and exchanges with AEMET established.	Up-to-date rissaga forecasting system with efficient monitoring to detect and correct system failures.	(1) Number of days of BRIFS model predictions
<b>1.1.9 Update and maintain wave modelling and prediction capabilities.</b> The Puertos del Estado SAPO wave prediction system will be updated and maintained following changes in the open boundary and surface forcing models.	Up-to-date wave forecasting system	(1) Number of days of SAPO model predictions for the Balearic Islands coastal areas

**Strategy 1.2. Expand and enhance observing and forecasting capabilities**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>1.2.1. Extend new glider observation areas.</b> Establish new monitoring lines and perform new processing studies in the western Mediterranean Sea by developing and expanding our Glider network. The potential to establish a new endurance glider line between Mallorca and Girona will help us identify mesoscale instabilities and filaments that can contribute and have a significant impact in the low nutrient surface waters of the western Mediterranean. New process studies are planned with European and International research groups, e.g. CALYPSO, and will support our objective to observe and understand three dimensional pathways driven by physical and biochemical processes in the Balearic seas. Process studies in another high-interest area, >>	Advance glider technology as marine ecosystem sentinels	(1) Number of gliders available (2) Number of missions performed (3) Number of days of glider operations (4) Number of nautical miles flown (5) Total number of CTD profiles

**Strategy 1.2. Expand and enhance observing and forecasting capabilities**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> namely the Alboran Sea and the Almeria - Oran front region, have already shown high submesoscale activity and connectivity. Understanding the role of submesoscale processes and tracing large scale connectivity pathways in marine systems will bring new insights about the control on phytoplankton communities and ecosystem health: these are important steps for longer term goals to connect with modelling jellyfish invasions and bluefin tuna sprawling areas, and the distribution of crustacean populations in the future decade.	<<	<<
<p><b>1.2.2. Improve and increase observational capabilities by measuring Essential Ocean Variables EOVS.</b> Expand the observational capabilities of ICTS SOCIB with new instruments and sensors that determine EOVS and in particular BGC variables and upon lab space availability at IMEDEA (CSIC-UIB). This is inline with strengthening the relationship between studies of the coupling between physical and biogeochemical variability under European and International programmes; for example, JERICO-S3 and the GOOS working groups on physical, biogeochemical and biological EOVS. Specifically:</p> <ul style="list-style-type: none"> <li>(1) Adding CDOM sensors to the lowered CTD and thermosalinograph on board the ship, and also expanding CDOM measurements in the lab with the acquisition of new spectrophotometers.</li> <li>(2) Obtaining an UV absorption nitrate sensor either off-the-shelf or a technology development for low concentration Mediterranean waters and science bay glider operation.</li> <li>(3) Expand Lagrangian platform capacity through the purchase of Biogeochemical Argo floats with a capacity to measure dissolved oxygen concentration.</li> <li>(4) Integrating hydrophones on the ocean gliders, we can better monitor the marine ecosystem at higher trophic levels. Cetaceans (marine mammals) have a crucial role as predators in the marine ecosystem.</li> <li>(5) Offer the Fixed Stations as test sites for open access.</li> </ul>	Expand biogeochemical and biological observing capabilities with (1) the use of new biogeochemical sensors on the RV SOCIB (CDOM, nitrate) and Lagrangian platform (2) performing analytical determinations for CDOM in the laboratory (3) Combination of newly available instrumentation and novel prototypes	<ul style="list-style-type: none"> <li>(1) Number of papers</li> <li>(2 ) Number of collaborations established</li> <li>(3) Number of calls/projects</li> <li>(4) Number of T&amp;S&amp;O2 Argo floats deployed</li> <li>(5) Number of vertical profilers</li> <li>(6) Number of active T&amp;S&amp;O2 Argo floats per year</li> <li>(7) Number of days of floats observation</li> <li>(8) Number of new EOVS , sub-variables and supporting variables</li> <li>(9) Total number of EOVS measured, sub-variables and supporting variables</li> <li>(10) Number of days performed with hydrophones</li> </ul>
<p><b>1.2.3. Deploy infrastructure to provide Real-Time Wave data at the Beach Monitoring Stations.</b> To expand observation capacities by obtaining real-time wave conditions from submerged Acoustic Waves and Currents Profilers. This will also provide real-time data streaming for end-users, not only the scientific community, but also as a support for early prevention and warning in front of extreme events for local authorities.</p>	Real-Time AWAC infrastructure and data streaming	(1) Amount of RT data

**Strategy 1.2. Expand and enhance observing and forecasting capabilities**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>1.2.4. Enhance HF Radar capabilities.</b> Two new High Frequency Radar radial sites will be installed in Cap de la Nau (Valencia Community) to expand the current HFR-Ibiza system coverage in the Ibiza Channel, until the continental shelf of the Spanish mainland. These new deployments will be managed in cooperation with the Spanish Port System, similarly to the approach followed in other Spanish systems (e.g. HFR-Ebro; HFR-Gibraltar; HFR-Galicia, etc). The new radial sites will be integrated into the central station of the existing system and will include the latest versions of the CODAR SeaSonde Radial Suite as well as the AIS Auto-APM software.	Expand the existing HFR-Ibiza system coverage and capabilities to the whole Ibiza Channel	(1) Number of HFR radial sites installed (2) Volume of the area covered by the new HFR-Ibiza system; (3) % time in operation (4) Number of days in operation from along the period
<b>1.2.5. Develop ensemble forecasting capacities for the “rissaga” modelling and prediction capabilities.</b> Following our recent study which demonstrated that BRIFS needed to evolve towards an ensemble prediction system to improve its reliability, a small ensemble of BRIFS predictions will be run every day to complement the present deterministic forecast and provide uncertainty estimates.	Operational BRIFS ensemble prediction system	(1) Results of BRIFS ensemble predictions displayed on SOCIB website
<b>1.2.6. Implement high-resolution hydrodynamic models for prediction in coastal areas of the Balearic Islands.</b> Given the increasing need for very high resolution simulations towards the coast, model nesting will be applied to generate ~1km resolution predictions of coastal dynamics over the most relevant areas of the Balearic Islands.	Very high resolution coastal simulations	(1) Number of areas and days of simulations with very high resolution

**Strategy 1.3. Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>1.3.1. Improve the Competitive Open Access Plan: R/V SOCIB and Glider fleet.</b> The ICTS will give in 2021 a boost to its competitive access policy to increase the use of the R/V SOCIB and glider fleet, by the scientific, technological, industrial community and administrations, following the established criteria of excellence and scientific and technical feasibility. This plan will propose a package of measures related to the strategic communication of the capabilities of the equipment (R/V SOCIB and glider fleet), as well as the support to the management of the National Plan project calls, from the State Research Agency and in collaboration with COCSABO and CSIC-UTM. Besides, ICTS SOCIB will develop a plain and effective access system to its facilities and services.	Deliver the Competitive Open Access Plan	(1) Number of campaigns in competitive access to the R/V SOCIB (2) Total number of navigation days in competitive access to the R/V SOCIB (3) Total number of campaigns in competitive access to the Glider fleet (4) Total number of navigation days in competitive access to the glider fleet

**Strategy 1.3. Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>1.3.2. Launch new calls for Competitive Open Access to the R/V SOCIB and Glider fleet.</b> Launch competitive open access calls as much as possible in cooperation between national and international agencies or projects.	Fulfil 20% of competitive access or more	(1) Number of calls (2) Total number of applications
<b>1.3.3. Work towards good coordination between the CANALES SOCIB programme with the IEO RadMed programme.</b> Actively coordinate the CANALES programme with the RadMed programme through closer collaboration with IEO.  At a scientist level we can merge the Canales lines with RadMED lines, one, the MC is in fact already the same line. RadMED is supported by Spanish fisheries on a high temporal resolution, but must carry out the necessary net sampling stations. This can be done in a shared cruise versus cruise protocol with IEO provided the senior management of both organisations agree. In return, SOCIB will require its Nutrient samples to be processed on IEO autoanalyser equipment.	Structural intercalibration procedures between IEO and SOCIB	(1) Number of intercalibration exercises
<b>1.3.4. Promote Transnational Access to ICTS SOCIB RI.</b> Make ICTS SOCIB ICTS RI (observational forecasting and data infrastructures) more available for transnational access by collaborating with other countries, in particular in the JERICO-S3 project.	Fulfil TA requirements	(1) Number of accesses (2) Number of users



## 4.2.

**SPECIFIC ACTIONS ADDRESSING OBJECTIVE 2****Objective 2: Boost the visibility, accessibility and usability of oceanographic data****Strategy 2.1. Improve the oceanographic data management programme: integrated and standardized data**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.1.1. Improve the ICTS SOCIB's Data Management Programme.</b> The SOCIB Data Management System (DMS) is the set of processes, services and documents aiming to effectively manage the SOCIB data assets lifecycle. The SOCIB Data Management Program is the framework in which the SOCIB DMS is managed, assessed and improved. The SOCIB Data Management Program is being implemented based on the <a href="#">Data Management Maturity model (DMM model)</a> , and it is providing a best practices roadmap and framework to improve the SOCIB data management function, including data strategy, data governance, data operations, data quality and data preservation among other areas. The Data Management Program includes the SOCIB Data Management Plans which will be reviewed and improved following international recommendations, best practices and use cases from DIGITAL.CSIC, IODE, NANOOS and Marine Institute, among others. It is worth mentioning that the Data Quality Assurance processes will be also improved through the implementation of the data lifecycle component of the SOCIB Monitoring System, that will facilitate the implementation of KPIs to be incorporated in periodical assessment in the framework of the Quality Management System.	(1) 100% ICTS SOCIB's data assets covered by a Data Management Plan (2) 100% SOPs (data and other resources) defined and implemented with a task/workflow management system (3) Data Policy update and fully implemented (4) Quality Control coverage increased and improved (5) SOCIB Monitoring System: 100% coverage for ICTS SOCIB Observing System (6) Data Quality improved (7) Reduction of reaction time for instrument maintenance operations	(1) Level of completeness of the Data Management Program (in terms of DMM model defined process areas) (2) Number of SOCIB related Observation Programs not following a Data Management Plan. (3) Level of compliance of the Data Policy (4) Number and temporary extent of QCed variables (5) Reaction time for facilities' maintenance operations
<b>2.1.2. Improve FAIRness of resources available in the ICTS SOCIB Catalogue.</b> The new ICTS SOCIB website will provide access to the ICTS SOCIB Resources Catalog which gradually will contain all ICTS SOCIB's resources regardless of its type (data products, products, services, infrastructures, publications, public documents, staff, etc...). Through this action a first iteration will be done related to FAIRness improvement. Subsequent iterations will increase the level of FAIRness in a stepwise process.	(1) 100% DOI coverage of eligible SOCIB resources (2) 75% FAIRification ( <a href="https://www.go-fair.org/fair-principles/fairification-process/">https://www.go-fair.org/fair-principles/fairification-process/</a> ) of ICTS SOCIB resources based (linked data) in the new ICTS SOCIB corporate site - Dec 2022	(1) Number of catalogued resources (2) Number of FAIR resources (3) FAIR metrics to be defined along the Strategic Plan

### Strategy 2.1. Improve the oceanographic data management programme: integrated and standardized data

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.1.3. Adopt new international Ocean Glider standard for ICTS SOCIB Glider Observation Programmes.</b> ICTS SOCIB is part of the OceanGlider program's task team dedicated to design the new OceanGlider data format. The format is merging the 3 main glider formats (USA, Europe and Australia -IOOS, EGO and IMOS) into a global one (OG1.0). The new format will be also compliant with the ARGO format so interoperability with the ARGO program will be guaranteed.	ICTS SOCIB's Glider data operational in the European format	(1) Volume of Glider data operational in the European format
<b>2.1.4. Distribute standardized near real-time and reprocessed HFR surface current data.</b> ICTS SOCIB will distribute standardized near-real-time and reprocessed HFR surface current data aligned with the EU HFR roadmap of pushing the availability of FAIR HFR data. Efforts will focus on the reprocessing of the radial data to be integrated at CMEMS-In Situ TAC portfolio and on the operational implementation of the HFRadar Toolbox and distribution of standardized data (radials and totals), also upgrading the HFR data Quality Control at ICTS SOCIB.	(1) Make standardized near-real-time and reprocessed HFR surface current data available in the different portals, and particularly at ICTS SOCIB (2) Make the data stream operational at ICTS SOCIB	(1) Volume of standardized HFR near-real-time data available in the different portals (2) Volume of standardized reprocessed HFR data available in the different portals (3) Level of operativity of the data stream
<b>2.1.5. Analyse the quality of the ICTS SOCIB lagrangian platforms data.</b> Examine ICTS SOCIB's lagrangian data to detect and correct corrupt or inaccurate records from the datasets, to classify and associate the inconsistencies into different levels. Also, revise and update the processing and reprocessing data and the Quality Control tests implemented.	Revise at least 50% of the lagrangian platform's data per year	(1) Number of surface drifters analysed (2) Number of profilers analysed

### Strategy 2.2. Obtain quality brands and trust seals in oceanographic data

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.2.1. Obtain the CoreTrustSeal Certification</b> To complete the certification processes of the ICTS SOCIB trusted data repository through CoreTrustSeal, submitting the proposal.	Obtain the Certification	(1) Application to the CoreTrustSeal certification process

**Strategy 2.2. Obtain quality brands and trust seals in oceanographic data**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.2.2. Obtain accreditation as an IOC-IODE Associate Data Unit.</b> The IOC-IODE's framework promotes the accreditation of NODCs which have implemented a Quality Management System based on the Quality Management Framework adhering to the guidelines laid out in the IOC-IODE's framework. By implementing a QMS for the SOCIB Data Management System, ICTS SOCIB will (1) optimize use of resources, (2) increase quality of products, (3) increase SOCIB reliability and (4) become and accredited IODE Associate Data Unit (ADU) and thus to become a National Oceanographic Data Center (NODC).	(1) Improvement of measurable results (2) 100% QMS processes implemented (3) Accredited ADU	(1) Application to ADU accreditation

**Strategy 2.3. Align ICTS SOCIB's data policy with the International Open Data/Open Science mandates**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.3.1. Update the ICTS SOCIB Data Policy and measures to enhance citation and recognition.</b> ICTS SOCIB will update its Data Policy and implement a package of measures aimed at enhancing citation and recognition among users.	(1) Data policy implemented (2) (70%) citation and recognition among users	(1) Data policy update (2) Number of citations (3) Number of acknowledgments
<b>2.3.2. Implement an alignment plan towards the international Open Science Mandates: Open Science/ Open Data/ Open Source.</b> ICTS SOCIB follows the recommendations of the European Union and advocates for creating a more open, transparent, collaborative, and sustainable global scientific communication system, pursuing a greater impact and scope of research results and the exploitation of oceanographic data. In this context, following the Spanish National Plan for Scientific and Technical Research and Innovation 2017-2020, ICTS SOCIB provides open access to the results and data of its activities funded with public resources through deposit to repositories, in compliance with the provisions of Article 37 of the Science, Technology and Innovation Law of 14 /2011 of 1 June, and the recommendations linked to the European Agenda on Open Access and Open Science. Likewise, as a public consortium with CSIC participation, ICTS SOCIB is aligned with the CSIC institutional Mandate of Open Access that emphasizes the management of research data according to the internationally recognized FAIR principles. This mandate connects with ICTS SOCIB's institutional commitment to provide open access through <a href="http://www.socib.es">www.socib.es</a> to the results of scientific and technological research, as well as to the oceanographic data collections and software developed, including outreach-related resources. It also adheres to the International Best Practices (DIGITAL.CSIC Best Practices and Research Data Policies).	Adhere (100%) to national and international Open Access Mandates	(1) Number of open access agreements/ adhesions

**Strategy 2.3. Align ICTS SOCIB's data policy with the International Open Data/Open Science mandates**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.3.3. Update and maintain the ICTS SOCIB's space in the DIGITAL.CSIC repository.</b> ICTS SOCIB will continuously update the scientific, technical, and informative collections, data sets, and software in DIGITAL.CSIC. This update will include content or metadata from the ICTS SOCIB Observing System.	Include ICTS SOCIB's collections (100%) in the largest science repository in Spain	(1) Number of resources included included in DIGITAL.CSIC

**Strategy 2.4. Reinforce monitoring impact, traceability, and continuous evaluation of the usage of oceanographic data and other resources of ICTS SOCIB**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.4.1. Improve the DOI assignation policy for ICTS SOCIB's research resources through Data Cite and DIGITAL.CSIC.</b> The storage, preservation, accessibility and citation of data and research resources in general (and related resources) is an essential aspect of the creation of reusable scientific production. The ICTS SOCIB is currently minting DOIs for its Data Products and now it aims at generalizing its DOI Assignment System to scientific, technical and dissemination documentation and software collections in order to increase the visibility of ICTS SOCIB in scientific publications, products or services that use these data and research resources and resources.  This strategic action has been initiated in 2020 in collaboration with DIGITAL.CSIC and will be extended in 2021 by sharing metadata records and research resources and documents. Through this alliance, ICTS SOCIB assigns DOIs and resources through the DataCite institutional membership managed by the Unit of Scientific Information Resources for Research (URICI) of the CSIC, in which the institutional repository DIGITAL.CSIC is enrolled.	(1) Assign DOIs to all ICTS SOCIB's production (2) Increase the visibility of all ICTS SOCIB's production	(1) Number of DOIs assigned: to scientific contributions, to technical contributions, to educational/didactic contributions and to Data Products (2) Number of citations of SOCIB resources with DOIs. (3) Specific KPIs for each type of resource with a DOI.

**Strategy 2.5. Develop a Digital Strategy applying sustainable and smart solutions to oceanographic data**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.5.1. Implement Machine Learning and Artificial Intelligence methods to analyse data.</b> ICTS SOCIB will develop a Digital Strategy aligned with the European Union Destination Earth (DestinE), a key component of the European Strategy for Data and the European Commission's Green Deal.  ICTS SOCIB will use machine learning (ML) and artificial >>	Join forces with the DestinE and the European Strategy for Data and analyse marine big data for maritime applications	(1) Number of smart alternatives implemented (2) Volume of data analysed (3) Volume of data shared under these strategies >>

### Strategy 2.5. Develop a Digital Strategy applying sustainable and smart solutions to oceanographic data

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> intelligence (AI) methods, to analyse fast, robust, and with high accuracy marine big data. The ML models can explore and show complex nonlinear relationships in the input data and provide the ability to develop the right tools for marine management and protection. Also, ICTS SOCIB will implement ML and AI techniques in its observing systems to capture potential failures and ensure high-quality observations, improving the performance of ocean models and forecasting for marine safety. ICTS SOCIB will also apply machine learning and AI algorithms to improve and develop smart alternatives to analyse data for performing daily tasks about the QC of data, monitoring and operating platforms and provide accurate results for predicting incidents that could affect the smart ocean network.	<<	>> (4) Number of potential failures detected (5) Number of results/derived tools or products obtained/ developed
<b>2.5.2. Implement the CoastSat model: Machine Learning for assessing coastline evolution.</b> Implementation of machine learning methods to obtain and track shoreline evolution and cliff retreat through Satellite Images using the CoastSat model ( <a href="http://coastsat.wrl.unsw.edu.au/">http://coastsat.wrl.unsw.edu.au/</a> ). This will produce a database of coastline evolution along all the Balearic Islands coasts.	Analyse beach and rocky coasts' evolution and trends in front of global change and sea-level processes	(1) Satellite images-extracted shorelines database (2) Number of results/derived tools or products obtained/ developed (3) Number of papers derived (4) Number of total views (results and data) per region, country, and city (5) Number of downloads per region, country, and city (6) Number of citations (7) Number of acknowledgments

### Strategy 2.6. Integrate and distribute ICTS SOCIB's oceanographic data

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>2.6.1. Integrate and distribute ICTS SOCIB data in Global and European portals and repositories.</b> The data collected by all ICTS SOCIB platforms will be incorporated and distributed in the marine data portals of reference in Spain and in Europe. The European landscape in marine >>	(1) Ingest 100% of eligible data into SeaDataNet (2) Ingest 100% of eligible data into EMODnet >>	(1) Volume of data ingested into SeaDataNet (2) Volume of data ingested into EMODnet >>

**Strategy 2.6. Integrate and distribute ICTS SOCIB's oceanographic data**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> data management is well established and is based on the following main components: SeaDataNet, EMODnet, Copernicus-In Situ Thematic Assembly Center (INSTAC), Argo DataBase, and EuroGOOS HF Radar Network.	>> (3) Ingest 100% of eligible data into CMEMS InSitu TAC (4) Transfer the data from at least 70% of ICTS SOCIB oceanographic campaigns into the Argo DataBase	>> (3) Volume of data ingested into CMEMS InSitu TAC (4) Volume of data ingested into Argo DataBase
<b>2.6.2. Publish DATA COLLECTION of the BMF long-term dataset as a Data Descriptor in Nature Scientific Data or similar.</b> Publish DATA COLLECTION of the BMF long-term dataset a Data Descriptor in <i>Nature Scientific Data</i> or similar (in process). The DATA COLLECTION accounts for the full dataset of the Modular Beach Integral Monitoring System at Cala Millor Beach: 10 years long-term continuous, regular and systematic bathymetries, video-monitoring, shorelines, waves, currents and meteorological conditions and grain-size distribution. The Data Descriptor details the methodology, postprocess, quality procedures and control and usage notes of the Data Collection.	1 publication, dataset and data descriptor citations	(1) Number of papers using the dataset (2) Number of total views (3) Number of downloads (4) Number of citations (5) Number of acknowledgments

## 4.3.

**SPECIFIC ACTIONS ADDRESSING OBJECTIVE 3****Objective 3: Promote social, economic, and environmental impacts through value-added ocean products and services****Strategy 3.1. Reinforce a Responsible Research and Innovation (RRI) Strategy**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>3.1.1. Build a national and international multi-stakeholder and sector-specific engagement strategy</b></p> <p>Establish a Responsible Research and Innovation (RRI) strategy, to foster the transfer of knowledge for the benefit of society, facilitate the use, application, and exploitation of the knowledge and data generated, as well as respond to environmental, social, and economic needs of society. The aim of this strategy is to actively connect industry, maritime users, citizens, and policymakers with research; integrating the ICTS SOCIB's R+D+i capabilities in the value chain. ICTS SOCIB will continue to design and implement tools, diagnostics, reports, viewers, early warning systems, applications, and other oceanographic products to promote marine and coastal management based on scientific evidence and support the blue economy, making it compatible with the sustainability of marine resources. ICTS SOCIB also promote towards an effective governance structure tools and methods to: identify the key agents; define roles, responsibilities and competences (internally and externally); encourage collaboration between public and private sectors; promote information interchange and building capacity. ICTS SOCIB's participation in fairs, forums, and events related to the different sectors of the ocean will also be promoted to establish synergies between citizens, the scientific community, and public and private companies that need ocean observation and prediction to support their activity. In this context, ICTS SOCIB will launch the "SOCIB stakeholder Forum" and will also create on the ICTS SOCIB website a Digital stakeholder Forum to collect feedback, engagement, and discussions on the Research and Innovation SOCIB'S Agenda. Furthermore, within the framework of the EuroSea project, ICTS SOCIB will coordinate an itinerant exhibition oriented to society/general public including project information and multimedia resources, and will also develop "Lessons learned from the EuroSea public engagement activities".</p>	<p>Foster the design of inclusive and sustainable research and innovation</p>	<p>(1) Number of uses, applications, and exploitations of knowledge and data generated</p> <p>(2) RRI-related products in response to economic, environmental, and social needs</p> <p>(3) Participation in fairs, forums and events</p> <p>(4) Number of multi-stakeholder and sector-specific synergies and collaborations established</p> <p>(5) Number of requests received through the Digital Mediterranean Forum</p>

**Strategy 3.2. Promote the restructure of SIAS Division**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>3.2.1. Restructure and boost the area of Strategic Issues and Applications for Society (SIAS Division): the new Environmental Management of Coastal and Marine Areas Service.</b></p> <p>The new organization chart included in 5.1.1 of the 2021-2024 Strategic Plan is intended to give visibility to the environmental, social, and economic impact of the scientific and technical activities, in general, and of the services, products, and applications for society, in particular. Consequently, a structural reform will be tackled.</p>	Increase strategic services, products and applications developed	(1) Number of strategic services, products and applications developed

**Strategy 3.3. Update ICTS SOCIB's oceanographic products and services**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>3.3.1. Improve the high-resolution ocean forecasting models: SAPO (waves), BRIFS ("rissagues"), and WMOP (ocean currents).</b></p> <p>ICTS SOCIB will continue to improve its high-resolution numerical models: SAPO, BRIFS, and WMOP, to predict: the evolution of currents, temperature, salinity, and sea level in the western Mediterranean; the formation of meteo-tsunamis (rissagues) in the port of Ciutadella (Menorca, Spain); and the characteristics of waves (height, period and direction) around the Balearic Islands</p>	Enhance models' predictive capability	(1) Volume of improvements implemented (2) Number of papers ICTS SOCIB models (traceability)
<p><b>3.3.2. Update the SACOSTA (Coastal Environmental Sensitivity Atlas of the Balearic Islands) viewer.</b></p> <p>To upgrade SA COSTA viewer by publishing geospatial data assets following International Best Practices. A GIS infrastructure will be built upon GeoServer, GeoNetWork and the central SOCIB PostGis database. A viewer or a set of viewers will be developed in order to show maps with the geospatial data assets to be used internally and also by external entities. This cartographic viewer will offer open data from other institutions (atlas of sensitivity, carrying capacity, marine protected areas, habitats...) for public policy managers.</p>	Improve the SACOSTA viewer for public policy managers	(1) Number of improvements implemented (2) number of views (3) number of requests received (4) Number of papers derived from SACOSTA (traceability)
<p><b>3.3.3. Develop Bluefin tuna larval survival indicators.</b></p> <p>Development of indicators of larval survival, as well as generation of bluefin tuna larval retention and dispersal maps by integrating environmental variables within the framework of the International Commission for the Conservation of Atlantic Tunas (ICCAT).</p>	Develop indicators of bluefin tuna larval survival, and retention and dispersal maps	(1) Number of tools (indicators and maps) developed (2) Number of papers



**Strategy 3.3. Update ICTS SOCIB's oceanographic products and services**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>3.3.4. Improve the IBISAR service.</b> The IBISAR service is a user-friendly science-based data downstream service that allows the visualization, comparison and the evaluation of the ocean current predictions performance..The expected progress (i.e. integration of surface drifters from complementary databases - SASEMAR, RadarOnRaia project -, update of integrated data products, increase the integration of coastal models, provision of HFR derived short-term predictions, addition of the functionality to sort the available data products by higher probability of success, etc) will be accomplished in the framework of the SOCIB-SASEMAR collaborations and in the context of other projects. Additionally, the promotional activities of the IBISAR service will take advantage of the role of IBISAR "ambassador" in other projects, presentations in the CMEMS Online User Training and Workshops and other conferences and in joint activities with the end users.	Expand functionalities of the IBISAR service and increase the number of datasets available, while keeping updated the existing ones	(1) Number of new data sources integrated (2) Number of updated data sources (3) Number of Views and downloads (4) Number of papers from IBISAR (traceability)
<b>3.3.5 Launch a Mediterranean Oceanographic Exploration Tool.</b> This web-based visualization tool will provide data exploration and visualization capabilities for ocean variables: sea surface temperature, salinity, sea level, chlorophyll-a, ocean fronts, and surface currents. This product will be of great value to researchers, university teachers in the field of marine sciences, and/or scientists in the understanding of environmental variability, education on oceanographic sciences and planning of sampling campaigns.	Provide valuable exploration tools and marine data to stakeholders	(1) Number of views (2) Number of papers derived (traceability)

**Strategy 3.4. Develop new ICTS SOCIB's oceanographic products and services**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>3.4.1. Design and implement a Products and Services Strategy Plan.</b> This plan will compile and analyze the current products and services of ICTS SOCIB and develop a study to identify sectoral needs at the local, regional, national, and European levels. It will also promote meetings and synergies between stakeholders, research staff, and developers of ICTS SOCIB to align the needs of potential users with the services and products designed. It will also set a communication strategy (end-users, media, and stakeholders) to position existing products and services and to design others that are useful and applicable to the needs detected. This plan will also include updating the catalogue of products, sectors, and users. It will also analyze and update the priced services.	Plan. Meet the needs of potential users and And to support effective ocean and coastal governance	(1) Number of sectoral needs identified (2) Number of meetings/events conducted (3) Number of news products and services designed

**Strategy 3.4. Develop new ICTS SOCIB's oceanographic products and services**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>3.4.2. Foster glider visualization tool.</b> To produce mean monthly and seasonal vertical sections of temperature, salinity, and the associated water masses transport of the Ibiza Channel.	Produce long-term glider observations' derived products	(1) Number of long-term glider observations' derived products (2) Number of papers derived (traceability)
<b>3.4.3. Develop ICTS SOCIB GISBeach 2.0.</b> The ICTS SOCIB provides access to and distribution of high resolution data on bathymetry, waves, as well as meteorological and granulometric data from the beaches it monitors. To ease end-users (scientific community, authorities and stakeholders) access and visibility of geospatial datasets, a web GIS app will be developed. This GIS viewer also will potentially account for all ICTS SOCIB geospatial datasets.	ICTS SOCIB GIS Viewer	(1) Number of views (2) Number of datasets downloaded or requested through the data viewer
<b>3.4.4. Promote the Sub-regional Mediterranean Sea indicators Tool.</b> The "Sub-regional Mediterranean Sea Indicators" tool is dedicated to the monitoring and visualization of multivariate and sub-regional ocean indicators in the Mediterranean Sea and around the Balearic Islands. This operational product consists in providing continuous information about the ocean state and variability from daily (events) to interannual/decadal (climate) scales in a simple way that could be consulted by the scientific community, educators in marine science and environmental agencies.	Provide continuous information about ocean state and variability	(1) Volume of data produced (2) Number of views and downloads (3) Number of requests received (4) Number of papers derived (traceability)
<b>3.4.5. Further the Sub-regional Mediterranean Marine Heat Waves Tool</b> The "Sub-regional Mediterranean Marine Heat Waves" tool addresses scientific analyses of Marine Heat Waves in the Mediterranean and its sub-regions at both short- and long-term time scales using satellite products. The visualization tool provides: (1) Daily bulletin of MHWs (near real-time daily maps and time series of MHWs in sub-regions) that allows the near real-time event detection, (2) Evolution of MHW characteristics (intensity, duration, frequency) at sub-regional scale over the last four decades (1982-2020) allowing the long-term change analyses. This user-friendly interface could be consulted by various (sub-) regional users (e.g. science, governance, education). This work is a contribution to the European EuroSea and JERICO-S3 projects.	Provide continuous information about marine heat waves and contribute to the understanding of climate change and its impacts	(1) Volume of data produced (2) Number of views and downloads (3) Number of requests received (4) Number of papers derived (traceability)

**Strategy 3.4. Develop new ICTS SOCIB's oceanographic products and services**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>3.4.6. Promote Balearic Coast Evolution Indicators</b> The "Balearic Coast Evolution Indicators" visualization tool is dedicated to the monitoring of the beach and cliff state of the Balearic Islands by means of key morphodynamic parameters. It will provide time series of these parameters for the trend analysis of coastal evolution. This tool aims at being used by the local and regional users (scientists, environmental agencies / governance, education).	Visualization tool	1) Volume of data produced (2) Number of views and downloads (3) Number of requests received (4) Number of papers derived (traceability)
<b>3.4.7. Restructure and enrich ICTS SOCIB satellite imagery.</b> The ICTS SOCIB satellite imagery provides added-value information from satellite observations (distributed by CMEMS) about the surface ocean state and variability in the western Mediterranean Sea. The daily bulletin and climatological statistics provide a comprehensive set of Essential Ocean Variables in support of the oceanographic campaigns (in operations and preparation, respectively) in the western Mediterranean and its different subregions. Specific events are also detected thanks to the satellite images. Additionally, the last generation of satellite (e.g. Sentinel-2) provides very high spatial resolution images enabling the monitoring in near real-time and the analysis of coastal processes. Strong collaboration with ICMAN will be established for specific applications (e.g. in the Balearic Sea and coastal areas).	Provide added-value information about the surface ocean state and variability for scientific studies	1) Volume of data produced (2) Number of views and downloads (3) Number of requests received (4) Number of papers derived (traceability)
<b>3.4.8. Develop a Run-up Early Warning System in Extreme wave conditions.</b> ICTS SOCIB will develop a warning system for wave run-up in beaches and marinas in front of extreme wave conditions, in line with the recent run-up early warning systems being developed at UK (Plymouth Coastal Observatory) and Australia (USNW).	To develop an Early-Warning System for wave run-up	1) Volume of data produced (2) Number of views and downloads (3) Number of requests received (4) Number of papers derived (traceability)
<b>3.4.9. Develop "Costes Pel Canvi" outputs.</b> Aimed at improving climate change projections derived from the project "Costes Pel Canvi" a GUI toolbox is being developed. This tool is aimed to be used by local authorities to compute extreme wave propagation accounting for local bathymetry effects, sea-level rise scenarios and inundation levels in a local framework to obtain impact maps related to IPCC scenarios. Furthermore, ICTS SOCIB will foster the creation of a regional working group on adaptation to climate change of the coastal areas at Balearic Islands, with the aim of strengthening the existing links between the institutional, social and economic dimensions.	To develop a GUI toolbox and foster an effective climate governance	(1) Number of local authorities with which toolbox is shared (1) Number of views and downloads

## 4.4.

**SPECIFIC ACTIONS ADDRESSING OBJECTIVE 4****Objective 4: Support and promote excellence in marine and coastal research at the regional, national, and international levels****Strategy 4.1. Strengthen strategic collaborations in research and innovation at the regional, national and international levels**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>4.1.1. Reinforce strategic collaborations in research and innovation at the regional and national level</b></p> <p>At the regional level, the ICTS SOCIB will continue to strengthen communication and collaboration with institutions such as: the Mediterranean Institute for Advanced Studies, IMEDEA (CSIC-UIB), the Oceanographic Center of the Balearic Islands - Spanish Institute of Oceanography (COB-IEO) and the University of the Balearic Islands (UIB), the Directorate General of Emergencies, Directorate General of Fisheries and the Directorate General of Climate Change of the Government of the Balearic Islands, the Nautical-Fishermen School of Palma de Mallorca, the Chamber of Commerce of the Balearic Islands and the Port Authority of the Balearic Islands. Collaboration with the NGO Save The Med and the Marilles Foundation will also continue to be promoted.</p> <p>At the national level and more specifically, collaboration with the Spanish National Research Council (CSIC) will focus on ongoing research with researchers from CEAB (Blanes Center for Advanced Studies), ICM (Institute of Marine Sciences), UTM (Marine Technology Unit) and ICMAN (Andalusian Institute of Marine Sciences). Specifically with the ICMAN, ICTS SOCIB will collaborate in the framework of Sen2Coast project. It will also strengthen communication and collaboration with other institutions such as: UPC (Polytechnic University of Catalonia), Puertos del Estado (PE), Sociedad de Salvamento y Seguridad Marítima (SASEMAR), Servicio de Búsqueda y Salvamento Aéreo (SAR), AZTI, PLOCAN and will maintain relations with the Ministry of Defence, through the Instituto Hidrográfico de la Marina (IHM) and with Fundación "la Caixa".</p>	Advance regional and national collaborations and strengthen research and innovation	(1) Number of institutions with which ICTS SOCIB collaborates (2) Number of collaborative projects (3) Number of collaborative events
<p><b>4.1.2. Strengthen strategic collaborations in research and innovation at the international level</b></p> <p>At the international level, it will continue to consolidate strategic collaborations with the Global Intergovernmental Ocean Observing System (GOOS), the European Ocean Observing System (EuroGOOS), the Mediterranean Oceanography Network for the Global Ocean Observing &gt;&gt;</p>	Advance international collaborations and strengthen research and innovation	1) Number of institutions with which ICTS SOCIB collaborates (2) Number of collaborative projects (3) Number of collaborative events

### Strategy 4.1. Strengthen strategic collaborations in research and innovation at the regional, national and international levels

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> System (MonGOOS), and the International Commission for the Conservation of Atlantic Tunas (ICCAT). It will also collaborate with key institutions such as WHOI and SIO (USA), the GODAE/Ocean Predict - Global Observing, Communications, Modeling and Assimilation System, to consolidate and improve global and regional ocean analysis and forecasting systems. ICTS SOCIB will continue to collaborate with the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) and the European Strategy Forum on Research Infrastructures (ESFRI). ICTS SOCIB will also continue to contribute to the international networks: Euro-Argo ERIC, European HF radar Node, Global Drifter Program (NOAA), SeaDataNet, EMODnet and EMODnet-Physics, and Copernicus-In Situ Thematic Assembly Center (INSTAC). In addition, ICTS SOCIB will continue to enhance collaboration with more than 70 European partners, which are part of the projects in which the ICTS SOCIB has a leading role, such as JERICO-S3, JERICO-DS, Copernicus-In Situ Thematic Assembly Center (INSTAC), EuroSea, and/or the CALYPSO initiative. Furthermore, ICTS SOCIB participates in the global initiative BOON for monitoring boundary ecosystems, as human activities highly impact these ecosystems and have high economic value for coastal communities.	<<	<<
<b>4.1.3. Enhance private partnership.</b> To boost partnerships among companies to offer targeted-oriented products and services for the marine and coastal management sector in the Balearic Islands, in the framework of global change. To build partnerships with national and international private organisations that like ICTS SOCIB pursue a global approach to ocean research and ocean observation, such as networks, clusters, and foundations.	Pursue a global approach to ocean research and ocean observation	1) Number of institutions with which ICTS SOCIB collaborates (2) Number of collaborative projects (3) Number of collaborative events

### Strategy 4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>4.2.1. Study the role of retention and dispersal processes driven by mesoscale oceanography on the bluefin tuna (<i>Thunnus thynnus</i>) larvae ecology.</b> ICTS SOCIB will continue with the study of the processes of retention, dispersal of early stages of bluefin tuna and other species related to their ecology (predator/prey) at different spatial scales.	Conduct research studies and deliver scientific production	(1) Number of papers (2) indicators and maps developed

**Strategy 4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>4.2.2. Tag sea turtles (Caretta Caretta) and analyze trajectories</b> To continue studying the role of the operational tagged marine animals in the dynamic management of the ocean using the loggerhead turtle (Caretta caretta) in the western Mediterranean as a case study. The collaboration with the NGO SavetheMed for the tagging and analysis of sea turtle trajectories will be maintained within the framework of the new GOOS animal tracking project, AniBOOS, of which ICTS SOCIB is part. Linking the sea turtle trajectories to environmental data offers now exciting possibilities to determine dynamic areas of ecological importance to support conservation management.	Conduct research studies and deliver scientific production	(1) Number of papers
<b>4.2.3. Study the oceanographic conditions associated with jellyfish invasion in coastal areas</b> To maintain the compilation of the jellyfish database established and to combine these data with the ocean observation system from ICTS SOCIB to obtain prediction tools in the Balearic Sea (of Pelagia noctiluca) as well as for the whole Mediterranean Sea (Physalia Physalis). This work is led by ICMAN-CSIC in collaboration with the Balearic Islands government.	(1) Maintenance and extension of the jellyfish database (2) Development of prediction tools for the Mediterranean Sea and the Balearic Islands.	(1) Number of papers
<b>4.2.4. Study the relationship between water mass variability and red shrimps landings in the Balearic Islands</b> Characterization of the intermediate water mass variability using in situ observations from profiling floats in the western Mediterranean Sea and focusing around the Balearic Islands. Determination of the relation between the water mass variability/change and the red shrimps behaviour/presence. Understanding of one of the key regional ecosystems for a sustainable management and use of the Balearic Sea. Collaboration with Direcció General de Pesca i Medi Marí del Govern de les Illes Balears.	Reach characterization of intermediate water mass variability in relation to red shrimps behaviour and presence	(1) Number of papers
<b>4.2.5. Increase coupled physical-biogeochemical studies for the support of a healthy marine ecosystem</b> Studies of the relationship between physical variability and biogeochemical cycling in response to Climate Change and Ocean Acidification, at the national and international level, will be strengthened through interactions within IEO, IMEDEA, JERICO-S3 and GOOS. ICTS SOCIB will support the monitoring of pH and nitrate trends, and variability, to strengthen its presence in the GOOS Essential Ocean Variables (EOVs) working groups.	Strengthen the collaboration with physical-biogeochemical studies and implications on ecosystem variability	(1) Number of papers



**Strategy 4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>4.2.6. Analyse and understand seasonal and interannual variability in the Mallorca and Ibiza Channels</b></p> <p>To continue with the CANALES endurance line, whose main objective is to study the physical-chemical characteristics of different water masses in the Mallorca and Ibiza Channels (temperature, salinity, oxygen) and their influence on biogeochemical cycles and biological processes. The ICTS SOCIB Balearic Channels CANALES monitoring programme provides a long-term window for studying changes in the surface circulation from weekly to seasonal and interannual scales in the Western Mediterranean. The Ibiza Channel is an essential area of biodiversity, and the reason for this is that in this area there is an interaction between Atlantic waters, which have recently entered through the Strait of Gibraltar, and Mediterranean waters. This interaction gives rise to a series of physical and biogeochemical processes that have consequences on the richness of the Balearic ecosystem.</p>	Understand seasonal and interannual coastal and variability in the Mallorca and Ibiza Channels	(1) Number of cruises (2) Number of physical and biogeochemical vertical profiles for each year (3) Number of papers
<p><b>4.2.7. Study three-dimensional current exchanges in meso- and submesoscale structures</b></p> <p>ICTS SOCIB will continue its active collaboration in the CALYPSO research initiative, together with IMEDEA (CSIC-UIB) and WHOI (USA). Through this initiative, the vertical transport and exchange of water masses in meso- and submesoscale eddies will be studied in order to understand the Lagrangian trajectories that originate at the surface and carry surface water inland at the front. The CALYPSO initiative aims to observe, understand and predict the three-dimensional currents through which the surface layers of the ocean communicate with the deep layers. Pilot glider mission will be starting in March 2021 and a dedicated cruise with two research vessels will be carried out in February 2022 in the north of Balearic Sea. Significant modelling activities will be also carried out.</p>	Understand the 3D Lagrangian trajectories	(1) Number of papers
<p><b>4.2.8. Study the distribution of microplastics in the Mallorca and Ibiza Channels</b></p> <p>The study of the distribution of floating plastics in the Mallorca and Ibiza Channels and their seasonal variability will be continued depending upon personnel and funding resources. Know the distribution of floating plastics concentration in the Balearic Sea due to the pandemic situation.</p>	Assess distribution and seasonal variability of plastic waste	(1) Data collected

**Strategy 4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>4.2.9. Study beach morphodynamics and resilience in front of global change and sea-level rise effects</b> ICTS SOCIB will study beach evolution trends and resilience in front of global change and sea-level rise effects by addressing key topics on near-shore research essential for understanding Balearic Islands coastal evolution: beach morphodynamics processes (basic research), wave extreme events, storm clustering and beach response and recovery time (applied research), long-term beach evolution trends (applied research), Posidonia Oceanica berms formation and dismantling processes.	Contribute on the current state-of-art knowledge of key near-shore morphodynamics unknowns to a better understanding and prediction of coastal evolution	(1) Number of papers
<b>4.2.10. Assess marine traffic and ship-based activities</b> Monitoring marine traffic is of particular interest for different facilities at ICTS SOCIB, from assessing human pressures on marine ecosystems to addressing safety issues in the deployment of ocean gliders. As such, ICTS SOCIB developed a real-time operational system to monitor ship-based activities in the Western Mediterranean using the automated identification system (AIS). Such infrastructure has been useful to assess the changes driven by the COVID-19 pandemic during 2020. Future research will be directed in using AIS data for ecological research (e.g. boat anchoring), incorporating the temporal dimensions in integrated approaches such as cumulative human impact mapping and advance towards the maturation of dynamic ocean management.	Operational system for marine traffic monitoring, scientific analyses about the impact on marine ecosystems.	(1) Number of papers
<b>4.2.11. Study physical carrying capacity.</b> To develop methods, indicators, procedures, thresholds, assessment criteria... to be used by decision makers and stakeholders in order to achieve and fulfill European and Regional legislation objectives and requirements (e.g., Water Framework Directive, Marine Spatial Planning Directive, Marine Strategy Framework Directive, Bathing Water Directive, Decret Posidonia, etc.). The carrying capacity, the limit of acceptable change and the environmental risk methodologies, among others, would allow ICTS SOCIB to study and understand the interactions and effects of maritime uses on marine ecosystems.	Develop tools for managers for a sound planning of the marine space and the preservation of marine ecosystems, through a knowledge based sustainable development approach.	(1) Number of papers
<b>4.2.12. Develop a strategic long-term vision of ocean integration.</b> In relation to Ocean Integration, it is now evident that the ocean observing system suffers from organisational silos due to the wide variety of ocean networks, the strong competition between scientists and the lack of a well-established governance framework. This lack of coordination limits our research capacity to successfully tackle major scientific and society challenges, such as climate change and also leads to the non-optimum use of resources. Here, >>	Publication	(1) Number of papers

**Strategy 4.2. Promote ICTS SOCIB research lines in marine ecosystems, ocean health, ocean variability, and operational oceanography**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> we address the need for more organisational integration among all the actors of the ocean observing and forecasting system. We believe that now is the right time since we have the scientific and technical capacities as well as the societal and political drivers. The objective is to work together among a large number of researchers, engineers, programme managers, and institutions, and collectively propose, in a position paper, practical solutions on how to foster better coordination and sharing and break down the silos.	<<	<<

**Strategy 4.3. Promote the development and adoption of Ocean Best Practices (OBS)**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>4.3.1. Implement ICTS SOCIB Ocean Best Practices</b> ICTS SOCIB will promote an Ocean Best Practices transversal programme to improve its structure of Facilities and Services, deliver established procedures of Best Practices, and adapt it whenever appropriate and desirable to the Ocean Best Practices System global system (OBPS). The OBPS is a global system <a href="https://www.oceanbestpractices.org/">https://www.oceanbestpractices.org/</a> , which promotes technological and methodological solutions to identify, support, and standardize best practices in oceanography, from training to research, through communication, data management, or oceanographic campaigns, among others. ICTS SOCIB will cooperate in international projects and initiatives that are actively working on Ocean Best Practices (EuroSea, JERICO-S3, JERICO-DS, Euro-Argo ERIC, and CMEMS) and will also implement at the international level the "Best practice in the visualization of the ocean's societal relevance and economic role", within the framework of the EuroSea project.	Improve internal structure and deliver Ocean Best Practices procedures consistent with the OBPS	(1) Number of established procedures (2) Number of uses (3) Number participation in international projects and initiatives related to OBP

**Strategy 4.4. Stimulate training of new generations of oceanographers and technicians**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>4.4.1. Offer financial support to students in the last year of their bachelor's or master's degree</b> Financial support will be maintained and increased for students studying or focusing their Bachelor's Degree Final Project (TFG) and Master's thesis (TFM) on research related to marine sciences and technologies at the UIB, UCA or other national or international universities.	Increase Bachelor's Degree Final Project (TFG), Master's thesis and training supervised by ICTS SOCIB staff	(1) Number of requests received from Master students (2) Number of Master's Thesis supervised by ICTS SOCIB staff (3) Number of TFGs supervised by ICTS SOCIB staff (4) Number of trainees supervised by ICTS SOCIB staff

**Strategy 4.4. Stimulate training of new generations of oceanographers and technicians**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>4.4.2. Increase the participation and leadership of ICTS SOCIB in Master's Degree</b></p> <p>ICTS SOCIB will promote a framework of collaboration with the University of the Balearic Islands and the University of Cádiz, aimed at having greater participation in this and other universities' masters' programmes.</p>	Expand the involvement of ICTS SOCIB personnel in university related educational activities	(1) Number of requests received from students (2) Number of requests received by universities (3) Number of educational activities involving ICTS SOCIB personnel
<p><b>4.4.3. Recruit young researchers and promote alliances/ agreements with other ICTS, groups, and national and international research centers</b></p> <p>To promote the training of young research personnel through the supervision by ICTS SOCIB staff of Final theses (TFG and TFM), Final Master Works (TFM) and PhD programmes. In addition, ICTS SOCIB will promote a collaboration framework with ICTS PLOCAN, national and international universities (University of Cadiz, Polytechnic University of Catalunya, ENSTA and Université de Liège), and national (IMEDEA, CSIC-UIB, ICMAN, IEO, AZTI) and international (CNR) research centers.</p>	Increase training activities carried out by ICTS SOCIB staff and institutional-related collaborations	(1) Number of requests received from students (2) Number of requests received by universities (3) Number of training activities involving ICTS SOCIB personnel (4)

## 4.5.

**SPECIFIC ACTIONS ADDRESSING OBJECTIVE 5****Objective 5: Encourage society engagement and promote ocean literacy****Strategy 5.1. Foster Ocean Literacy, public recognition of ocean observatories and marine environmental education**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>5.1.1. Design and implement a programme for the promotion of Ocean Literacy</b></p> <p>ICTS SOCIB will continue working towards accelerating a shift in Ocean literacy, through activities and resources for all audiences, and especially intended for the educational community. It will also promote knowledge and dissemination of the ocean and its crucial role on planet Earth sustaining all forms of life, while highlighting the value of marine science and oceanography in ocean conservation, communicating in a creative and playful way the work carried out by institutions such as ICTS SOCIB. In order to achieve greater visibility, it will create its own brand "SOCIB Ocean Literacy-Observing Systems" with the aim of filling the gap in information and educational resources on this subject in Spanish and Catalan. It will also carry out face-to-face and online activities such as visits to the R/V SOCIB, talks and workshops in primary and secondary schools, conferences for the general public, etc. ICTS SOCIB will furthermore increase its visibility through social media campaigns coinciding with scientific celebrations such as World Maritime Day, World Tuna Day, World Ocean Day, etc. All content will be aligned with the United Nations' Decade of Ocean Science for Sustainable Development (2021-2030) that establishes a common framework ensuring that ocean sciences can fully support countries in achieving Sustainable Development Goals (SDGs) 14: "Life below water", 13 "Climate Action" and 4 "Quality Education".</p>	Raise Ocean Literacy levels (locally and regionally)	(1) Number of activities organised (2) Number of resources produced (3) Number of participants in ICTS SOCIB Ocean Literacy related activities (4) Number of views and downloads
<p><b>5.1.2. Actively participate in the European Ocean Coalition (EU4Ocean)</b></p> <p>ICTS SOCIB has been a founding member of the European Ocean literacy Coalition (EU4Ocean) since 2019 and actively participates in the Climate and Ocean, and Healthy and Clean Ocean Working Groups. EU4Ocean connects diverse organisations, projects, and people that contribute to ocean literacy and the sustainable management of the ocean. Supported by the European Commission, this bottom-up inclusive initiative aims at uniting the voices of Europeans &gt;&gt;</p>	Support EU4Ocean aims (locally, regionally and internationally)	(1) Number of synergies and collations established

### Strategy 5.1. Foster Ocean Literacy, public recognition of ocean observatories and marine environmental education

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> to make the ocean a concern of everyone. Through its participation, ICTS SOCIB supports the aims of the coalition to contribute to enhancing awareness and the engagement of all parties involved in the sustainable management of our oceans and seas; help coalition members to become ocean advocates in their own field/role/region as well as agents of transition supporting changes in perceptions, values, attitudes, and behaviour towards more sustainable practices, management of the ocean and blue economy opportunities; and put ocean literacy high on the policy agenda, contributing inter alia to the implementation of the EU marine and maritime policies and the achievement of the Sustainable Development Goals (SDGs) of the Agenda 2030, in particular the SDG 14 "Life below Water". The EU4Ocean coalition combines EU-wide activities with actions dedicated to the Arctic Ocean, the Atlantic Ocean (including the North Sea), the Baltic Sea, the Black Sea, the Mediterranean Sea, and the global ocean.	<<	<<
<b>5.1.3. Submit the "Acostamar. Más ciencia para conservar el mar Balear" towards FECYT call.</b> The project aims to build a coalition/network involving all interested parties and audiences of the Balearic society, to foster the visibility and accessibility of the research, marine technologies applications, training, dissemination, and communication of knowledge about the Balearic Sea and its resources conducted in the Balearic Islands. The coalition aims to serve as a starting point for the creation of a national coalition/network involving all national seas. In addition, it aims to disseminate and establish the concept of Ocean Literacy in the Balearic Islands, through the insertion of content related to the Balearic Sea, science, and marine technologies in the cultural and the regional educational programming, with special emphasis on the islands of Menorca, Ibiza, and Formentera usually far from outreach activities, in which there are no research centres and cultural programming is scarce. In addition, it is intended to give visibility and place value on the scientific activity and, especially, that carried out by oceanic observatories such as ICTS SOCIB and other marine ICTS, which monitor, research, and model the Balearic Sea, facilitating the sustainable management of marine and coastal resources based on scientific knowledge.	Foster ocean-related education and awareness, and promote ocean literacy (regional and national levels)	(1) Number of activities organised (2) Number of resources produced (3) Number of participants i (4) Volume of views and downloads
<b>5.1.4. Participate in international networks of Ocean Literacy experts.</b> ICTS SOCIB will continue to strengthen collaborations with GOOS, EuroGOOS and UNESCO-IOC in Ocean Literacy related initiatives and international projects, such as Argonautica Project (CNES).	Foster ocean-related education and awareness, and promote Ocean Literacy (European and international levels)	(1) Number of synergies and collations established



**Strategy 5.1. Foster Ocean Literacy, public recognition of ocean observatories and marine environmental education**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>5.1.5. Organise workshops for education professionals: “The sea as an educational resource”</b></p> <p>Three workshops will be conceptualized and held for Early Childhood and Primary Education teachers, teaching students and professionals from the education sector in general with the aim of expanding the field of activities and didactic strategies that can be used in the classroom, including marine sciences and technologies. In these workshops, participants will learn the work that the scientists of the ICTS SOCIB, as well as other institutions of the Balearic Islands, carry out to better understand and conserve the Balearic Sea and the global ocean, in addition to how they work from laboratories or on oceanographic vessels, using multiple technologies to collect data on marine water, animals and plants, as well as to make predictions. The audiovisual contents of the workshops will be available online through ICTS SOCIB website.</p>	Foster ocean-related education	(1) Number of participants (2) Number of resources produced
<p><b>5.1.6. Host the second Ocean Observers virtual workshop</b></p> <p>The Ocean Observers virtual workshop, in the framework of EuroArgo- RISE project, will bring together ocean scientists, educational authorities and teachers, marine communicators, sailing community and other stakeholders (public, policy-makers, and etc.), who are willing to share marine science educational resources and experiences for exploring the possibilities to establish new international collaborative activities. A key focus of the initiative is to gather and share experience on educational activities related to in situ ocean observations, to be able in the longer term, to assemble all educational materials in a unique repository under the UNESCO auspices. The repository, e.g. OceanTeacher Global Academy, will be free and will help to build a global ocean observations learning platform.</p>	Establish new international collaborative activities in marine education	(1) Number of participants
<p><b>5.1.7. Conceptualize and produce “The Balearic Sea Seven Principles of Ocean Literacy” video</b></p> <p>ICTS SOCIB will design and share the video (Motion Graphic): “The Balearic Sea Seven Principles of Ocean Literacy” aimed at promoting interest in the cause-effect relationship between individual and collective behaviour and the impacts that threaten the health of the Balearic Sea, reinforcing the connection between the Balearic Sea and the global ocean in the collective imagination.</p>	Promote Ocean Literacy (local and regional levels)	(1) Number of views
<p><b>5.1.8. Design and promote the “Bluefin Tuna, Operational Oceanography and Ecology” video</b></p> <p>ICTS SOCIB, together with the Centro Oceanográfico de Baleares - Instituto Español de Oceanografía (COB-IEO) will design and share a video about Bluefin Tuna, Operational Oceanography, and Ecology aimed at raising awareness &gt;&gt;</p>	Increase awareness on the importance of science with and for society	(1) Number of views

**Strategy 5.1. Foster Ocean Literacy, public recognition of ocean observatories and marine environmental education**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<< on the importance of the ecology for operational fisheries oceanography: modelling and predicting spawning distribution of Atlantic bluefin tuna in Western Mediterranean. This video will also serve to give a rough picture of the importance of bringing science closer to society and will be released on World Tuna Day (science with and for society - fisheries).	<<	<<
<b>5.1.9. Promote the Nomination of World Mediterranean Day (IOC-UNESCO)</b> The Member States of the Union for the Mediterranean (UfM) declared 28 November as the 'International Day of the Mediterranean', to be observed from now on each year with a view to fostering a common Mediterranean identity while promoting intercultural exchanges and embracing the diversity of the region. ICTS SOCIB aims to contribute to the celebration and foster its visibility while making a formal request to IOC-UNESCO.	Foster Mediterranean-related awareness	(1) Number of activities
<b>5.1.10. Create and share a Science-Based Beach, Coastal and Sea Code for the Balearic Islands Guide</b> ICTS SOCIB will create and disseminate a code in order to offer recommendations based on scientific knowledge on how to act responsibly to respect, protect and enjoy the beaches, coastal areas and the Balearic Sea.	Increase awareness on the need to respect and protect our environment	(1) Number of Views

**Strategy 5.2. Enhance participation in Citizen Science projects**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>5.2.1. Coordinate the Microplastic Watchers - "Observadores del Mar" project in the Balearic Islands</b> This is a citizen science project integrated into the "Observadores del Mar" web platform. Its objective is to involve citizens in the diagnosis of the presence, abundance, and variability of microplastics and mesoplastics on beaches. There is still not enough information about this problem. Hand in hand with ICTS SOCIB staff, scientists, and technicians, citizens will receive training and resources to collect data on specific beaches, following a scientific protocol for sampling and classification of plastics of different types and sizes. Citizens will also be in charge of publishing these data on the website ( <a href="http://www.observadoresdelmar.es">www.observadoresdelmar.es</a> ). The initiative fully involves society in research, establishing an exchange of knowledge, joint work, and dialogue with scientists in person and virtually through the web. People of all ages, civic centres, neighbourhood entities, and schools will participate in this project. In the case of the educational community, the >>	Attract citizens and motivate them to dedicate their energy and time to science	(1) Number of participants (2) Number of activities (3) Number of resources produced (4) Volume of data produced

**Strategy 5.2. Enhance participation in Citizen Science projects**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> sampling has been adapted for the last years of primary students, secondary students, and professional training students, and will be shared with the teaching staff in training sessions organised by ICTS SOCIB. In the Balearic Islands, this project will be carried out in collaboration with the Marilles Foundation.	<<	<<
<b>5.2.2. Participate in the “Observadores del Mar” coordinator team.</b> Starting in 2022, ICTS SOCIB will be part of the coordinating group of the “Observadores del Mar” Project, a marine citizen science platform that houses different initiatives (13 currently active) proposed by teams of researchers belonging to more than 25 institutions. The ultimate purpose of the platform is to contribute to knowledge in order to promote the good health of the oceans through obtaining scientific information, awareness, and involvement in decision-making for management. “Observadores del Mar” aspires to be a benchmark marine citizen science platform in Spain. ICTS SOCIB will be part of the project coordination and will assume tasks of the General Coordination Area, the Scientific Area, the Participation Area, and the Communication Area.	Contribute to creating a benchmark marine citizen science platform in Spain	(1) Number of activities Organized/ participated
<b>5.2.3. Launch CoastSnap, a citizen science initiative on beach monitoring.</b> CoastSnap is a citizen science initiative created by the University of New South Wales (UNSW, Australia), and encompassed within the Coastal Imaging Research Network (CIRN), to which the ICTS SOCIB has joined. The project makes it possible to obtain images on beaches where the installation of video-monitoring systems is not possible, thus promoting the immersion of society in coastal dynamics research. In the coming years, ICTS SOCIB intends to promote this project in the Balearic Islands in collaboration with the Regional Ministry for the Environment of the Balearic Islands Government. With the Images collected by the participants, the researchers will study patterns, morphodynamic changes, and trends through image analysis. Furthermore, it is encompassed within the Spanish CoastSnap net (Universidad de Vigo, Universidad de Cádiz, ICM-CSIC and SOCIB) ‘Centinelas de la Costa’.	Generate social awareness on global change and sea-level rise effects on the coast	(1) Number of images sent (2) Number of participants

**Strategy 5.3. Grow brand awareness, find and engage the target audience**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>5.3.1. Design and implement a social media marketing strategy.</b> In order to make the most of its social media, ICTS SOCIB will target the audience and goals to choose a suitable platform (or several) for its science communication initiatives. As a majority of social groups are present on social media, they offer great potential for targeted science communication. ICTS SOCIB is currently present on Twitter, Facebook, YouTube, and Flickr. Nowadays, photo and video- >>	Deliver targeted science communication	(1) Number of social media managed (2) Number of followers (3) Number of posts (4) Number of views (videos)

**Strategy 5.3. Grow brand awareness, find and engage the target audience**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> based social media have become increasingly popular, and much of science can lend itself to a medium that makes use of beautiful and striking images and videos. Thus, ICTS SOCIB will expand its social media presence by opening channels on Instagram and TikTok. Instagram was started and still is mainly image-based. However, it has introduced a lot of new formats such as IG-tv videos of up to 15 minutes, 30-second reels (equivalent to TikToks), and stories. One post to the feed can include several images and a text of 2200 characters that leave enough space for sharing an engaging story including infographics. Additionally, sharing posts to stories can help to advertise them to the community. TikTok is probably one of the platforms with the highest throughput and consumption of content. With a maximum length of 60 seconds, videos need to be short and grab someone's interest within a few seconds – or else the video will be swiped away. TikTok allows easy access to big audiences independent of the size of your following. Owing to its comparably young community, this is also probably the best platform to make science more fun.	<<	<<
<b>5.3.2. Create an ICTS SOCIB outreach catalogue.</b> ICTS SOCIB will create a "Think in Blue" catalogue, a repository for quality education and information tools, resources, good practices and success stories on Ocean Literacy.	Transform the way society perceives our seas by reorienting education to environmental principles	(1) Number of resources (2) Number of views and downloads
<b>5.3.3. Design, create and publish an ICTS SOCIB Newsletter.</b> In line with the previous activities and with the new website, ICTS SOCIB will launch a quarterly newsletter. The newsletter will be a collection of the main news stories published in the news web section, rounded out by other stories aimed to give readers an overview of the activities and life at ICTS SOCIB during a given period, devoting space to stories about its researchers and collaborators from a closer, more personal perspective. It will also advertise events and Marine Science and Coastal Science jobs and opportunities in the Balearic Islands. Newsletters provide great engagement rates and are a good way to keep in constant communication with subscribers (users, sectors, institutions, the general public, internal community). This content can focus on ICTS SOCIB staff or initiatives, or on third parties who in some way collaborate with ICTS SOCIB (visitors, experts, etc.). Newsletters are also a perfect communication tool to generate web traffic, stimulating visits, access to data, products, or services. It will be sent to subscribers who wish to receive it. Stakeholders and internal staff will receive the publication via email upon publication. It will also be available via the ICTS SOCIB website. The newsletter will be published in 3 languages (Catalan, Spanish and English).	Improve awareness about the science and related activities undertaken at ICTS SOCIB	(1) Emails sent (2) Opened emails

# 4.6.

## SPECIFIC ACTIONS ADDRESSING OBJECTIVE 6

Objective 6: Improve and strengthen the functioning and organizational structure of icts socib		
Strategy 6.1. Renew the structure, organizational chart, and internal functioning of ICTS SOCIB		
Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>6.1.1. Initiate the process for renewal ICTS SOCIB organizational structure and chart.</b></p> <p>More flexible and transversal governance will be promoted, including a new circular organization chart, and a highly defined catalogue of functions. The roles and responsibilities of each member of the team will be defined around this organization chart. The figure of a Deputy Director will acquire relevance, as a key and strategic position in scientific and technical coordination, team supervision, and fulfillment of objectives and key results in the short and long term. The role of a new management advisory committee will be strengthened, composed of the heads of facilities and services. Intermediate positions will be created, with a special interest in the figure of a coordinator/scientific advisor of the Data Center to ensure a strategic direction, scientific quality control, and dissemination in the field of R+D+i. ICTS SOCIB meteo-oceanographic data represents real processes, each of them related to different natures, dimensions, time, and length scales, therefore it is necessary a scientific profile able to understand the particularities of each type of data and to conduct the needs of the different facilities in an adequate and efficient way. The Engineering and Technology Development Division (ETD Division) will have to be restructured and reinforced, bringing together all the ICTS technicians, in line with the structure of the UTM-CSIC, with which it is expected to increase collaboration on issues of ship management, scientific equipment, and data management. The service of Products, Services, and Tools for society will also be restructured. In addition, the RRI, Communication and Ocean Literacy Service will become the Corporate Strategy, Communication and Ocean Literacy Service.</p>	<p>Provide a strategic fit between ICTS SOCIB's internal capabilities and the shift in the external environment.</p>	<p>(1) Staff retention/ Rotation rate</p>

**Strategy 6.2. Develop and implement strategic human resources planning**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>6.2.1. Promote measures to recruit and retain the talent, and provide continuous training for employees.</b></p> <p>ICTS SOCIB will advance towards a new human resources strategy to attract talent and improve recruitment procedures for qualified and experienced personnel, including career path and goal, career ability, promotional opportunities, and salary measures; in order to achieve the quality seal awarded by the European Commission "HR Excellence in Research". To that end, ICTS SOCIB will adhere to the Human Resources Strategy for Researchers (HRS4R) establishing an Open, Transparent and Merit-based recruitment policy, applying the standards of the European Research Area of excellence. Furthermore, ICTS SOCIB will adhere to the "European Charter for Researchers" principles and requirements aimed at improving the recruitment of research and technical staff. It will also connect with Euraxess-Researchers in Motion. In order to strengthen and expand the research staff of ICTS SOCIB, it will foster participation in regional (Margalida Comas and Vicenç Mut programmes) and national (Juan de La Cierva grants, Ramón y Cajal programme) calls for postdoctoral contracts. Also, aimed at strengthening and expanding its technical staff, ICTS SOCIB will boost participation in competitive calls for Technical Support Personnel PTA (regional and national calls).</p> <p>In addition, ICTS SOCIB will work towards increasing the level of staff satisfaction and will evaluate it on a quarterly basis to avoid burnout syndrome, improving the work environment, promoting a healthy work-life balance and the well-being (aligned with the SDG 3), and establishing the figure of the external mediator for conflict resolution. ICTS SOCIB will also promote the use of IT tools to improve human resources management and establish indicators that show both the level of employee well-being and the effectiveness of the strategy applied to human capital management. This Plan also contemplates the training of ICTS SOCIB personnel in new technologies, digitalization, artificial intelligence, and marine instrumentation. Likewise, ICTS SOCIB will develop a programme of stays in which researchers and technicians will have the opportunity to visit other centers to contribute new ideas and extend the collaboration networks.</p>	Implement a strong organizational culture and opportunities for people to grow	<p>(1) Number of actions implemented</p> <p>(2) Number new hiring procedures implemented or ameliorated</p> <p>(3) number of participants in regional and national calls</p> <p>(4) Number of training offered to the staff and participants</p>
<p><b>6.2.2. Develop and implement a Gender Equality and Diversity Plan.</b></p> <p>ICTS SOCIB is committed to promoting a work environment in which equality, diversity, and inclusion are valued and favored and works towards continue advancing in this &gt;&gt;</p>	Development plan participation Translate national equality legislation into effective >>	<p>(1) Number of activities</p> <p>(2) Number of resources</p>



**Strategy 6.2. Develop and implement strategic human resources planning**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p>&gt;&gt; direction by developing a Gender Equality and Diversity Plan, in compliance with the Organic Law 3/2007, 22 of March for effective equality between women and men, and taking as a reference the II Equality Plan CSIC – 2019. This Gender Equality and Diversity Plan aims to eliminate all forms of discrimination and increase the visibility and recognition of the scientific, technical, and administrative activity of women. Furthermore, ICTS SOCIB is aligned with the Law on Science, Technology and Innovation, of 1 June 2011, which aims "To promote the inclusion of the gender perspective as a cross-cutting category in science, technology, and innovation, as well as a balanced presence of women and men in all areas of the Spanish Science, Technology and Innovation System". The European Research Area (ERA, 2012) has as its fourth priority "gender equality and gender perspective in research, through the promotion of gender diversity to foster scientific excellence". In addition, the UN through the 2030 Agenda (Paris, September 25, 2015) established the Sustainable Development Goal (SDG) 5 "Achieve gender equality and empower all women and girls" including Target 5.5 to "ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life".</p>	<p>&gt;&gt; action to address gender imbalances in ICTS SOCIB and integrate the gender dimension better into R+D+i programmes and projects</p>	<p>&lt;&lt;</p>
<p><b>6.2.3. Improve adherence to corporate policies.</b> Internal processes and tasks of accompanying, communicating, and engaging will be implemented for efficient adherence to corporate policies. Manuals, recommendations, and rules for internal use will be created, including the Onboarding Manual to prepare employees to fulfill their job duties, cohere with the corporate culture, and maintain the highest level of engagement in the shortest time possible. Among others, the Manual will include a (1) Guide to depositing works in DIGITAL.CSIC (from ICTS SOCIB); a (2) Manual for editing records in DIGITAL.CSIC, including COAR Vocabulary on types of research results, and templates for the description of records; a (3) Repository User Manual, which is key for archiving and internal registration, as it will become ICTS SOCIB web repository (linked to the CMS database of the new website) and interface for assigning DOIs when depositing information in DIGITAL.CSIC; (4) clear information and best practices on additional intellectual property protection licenses to DOIs, such as Creative Commons or Open Data Commons; (5) standards and recommendations related to good practices in publishing and distribution, such as the International Standard Book Number (ISBN) and the Legal Deposit.</p>	<p>Ensure compliance with policies and procedures</p>	<p>(1) Number of resources, guides, rules or procedures implemented (2) Number of uses of the manuals, guides, rules or procedures</p>

**Strategy 6.2. Develop and implement strategic human resources planning**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>6.2.4. Deliver the right tools to aid employees.</b> To establish fully-integrated management IT tools covering all the needs of the staff, including Intranet, electronic headquarters, digital repository, and human resource management software. ICTS SOCIB will provide IT tools based on staff needs and specific training for each.	Help employees to work better, smarter and to share talents, skills and data on the way	(1) Number of IT tools implemented
<b>6.2.5. Provide OKR methodology, task management tools and training for the staff.</b> ICTS SOCIB will provide specific training for the staff in order to adhere to a unique working methodology and also improve their human resources management skills.	Understand employees training needs and implement a training programme	(1) Number of trainings

**Strategy 6.3. Strengthen the ICTS SOCIB brand identity**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<b>6.3.1. Launch, communicate and position the new ICTS SOCIB website.</b> The new ICTS SOCIB website is expected to be up and running by the end of 2021. This process started in 2019 and it has been extended due to the rethinking of the information architecture (Observing and Prediction Systems, Data, Products, and Services, Ocean Literacy). The new website includes new tools for access, visualization, data download, and recognition (Citation and Acknowledgements). The objective is to provide a modern web design, direct and friendly content, and a strong corporate character that allows ICTS SOCIB to inform and connect with all interested parties (users of the marine and maritime sectors, public and private institutions, media, and the general public). It has two levels of authentication, one for external users and another for the internal community, therefore it is intended to become the main official internal communication tool of the institution. The new ICTS SOCIB website is not only an information portal, but a tool, and its design has required a multidisciplinary approach and the parallel work of different tools such as (1) ICTS SOCIB historical database associated with the CMS, (2) backoffice (construction), (3) ICTS SOCIB in Figures tool: visualizer of metrics related to its activity (Annual performance indicators), both by key indicators and by observation platform, (4) relational content tool and search engine by keyword, (5) Web-style manual, (6) catalogue of graphic and audiovisual resources (7) Web video tutorial, and (8) catalogue of texts in Spanish, Catalan, and English. >>	Design and launch web Style Manual, graphic and audiovisual resources catalogue, web video tutorial, and Communication Plan	(1) Number of tools (2) Number of contents published (3) Number of visits (4) Time of permanence (5) Number of unique users

**Strategy 6.3. Strengthen the ICTS SOCIB brand identity**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
>> The improvement and updating of viewers, control panels, user manuals, etc. are also foreseen. Finally, it should be noted that the website will pay special attention to provide the user with clear mechanisms for citation and acknowledgment in order to be able to track and evaluate the impact of our activity. A Digital stakeholder Forum will also be created on the ICTS SOCIB website to collect the needs of all potential users.	<<	<<
<b>6.3.2. Improve internal and external communication: "ICTS SOCIB Communication Guide 2021-2024"</b> The "SOCIB Communication Guide 2020-2024" will be revised, completed and edited, based on the 2017 communication guide. This guide will be the main instrument of ICTS SOCIB internal and external communication. It will consist of general guidelines and resources that the ICTS SOCIB staff should know and use systematically in any communicative context with the aim of ensuring rigorous, coherent, and adapted messages to each target audience and channel. The guide will include the following sections: Context analysis, Target identification, General communication objectives, Corporate communication strategies (internal and external), Offline and Online Communication actions, Web positioning - SEO manual, Argumentary, Website editor manual, Corporate Identity (brand style) manual, Key Performance Indicators, and evaluation.	Deliver an effective Guide for internal and external communication	(1) Number of uses
<b>6.3.3. Update ICTS SOCIB corporate identity (Brand style).</b> In response to the internal renewal, the CSIC incorporation to ICTS SOCIB, scientific challenges, and new headquarters, the ICTS SOCIB branding will be updated. The update will mainly apply to minor modifications to the logo and the application of the branding on stationery and web content. In addition, new updated corporate material with a four-year lifetime will be designed, produced, and distributed. Furthermore, an outreach Annual Report will be designed and distributed for the general public and the media, to communicate the most representative annual outputs by the institution. Based on this information, a general presentation of ICTS SOCIB will be prepared.	Improve public awareness through new updated corporate material (Annual report, institutional video and brochure)	(1) Number of updated corporate material

**Strategy 6.4. Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society**

Specific Action / Description	Key Result / Expected outcome	Indicator (measurable)
<p><b>6.4.1. The new ICTS SOCIB building: construction, equipment, moving and social presentation</b></p> <p>New building will facilitate greater team collaboration, and a sense of ownership and also great corporate projection to society. The new ICTS SOCIB headquarters will also reinforce the corporate and institution's projection including CSIC.</p> <p>Significant activities will be carried out in relation to the follow up of the construction with CSIC, the equipment planning and tender preparation, etc. Furthermore, several public events will be held as part of this initial process: laid of the foundation stone, architectural, scientific, technical, and social ICTS SOCIB project presentation, sector forums, etc.</p>	<p>New ICTS SOCIB headquarters: 3,600 m<sup>2</sup> in 4 floors, 10 different labs, warehouses, etc.</p> <p>Up to 100 permanent staff</p>	<p>(1) Number of activities related with the construction, equipment, moving and social presentation</p>
<p><b>6.4.2. Work on "ICTS SOCIB 2030-Polo Marino roadmap"</b></p> <p>An agenda and roadmap will be drawn up to address, through projects or programmes, the scientific, technological, and social opportunities derived from the building of the new ICTS SOCIB headquarters in the centre of Palma (Port of Palma) in an environment specialized in marine R+D+i (Polo Marino). During this process, dialogue with the local public administrations and other related sectors will be decisive in contributing to achieving the sustainable management of marine and coastal resources, as well as mitigating and adapting to the effects of climate change in the Balearic Islands.</p>	<p>Set an agenda and roadmap to maximize impacts and resources of the new headquarters</p>	<p>(1) Number of projects or programmes to address new headquarters' opportunities</p> <p>(3) Number of activities</p> <p>(4) Number of participants</p>







5

**TIMETABLE**





[illegible]

[illegible]



### OBJECTIVE 3: PROMOTE SOCIAL, ECONOMIC, AND ENVIRONMENTAL IMPACTS THROUGH VALUE-ADDED OCEAN PRODUCTS AND SERVICES

[illegible]

## OBJECTIVE 4: SUPPORT AND PROMOTE EXCELLENCE IN MARINE AND COASTAL RESEARCH AT THE REGIONAL, NATIONAL AND INTERNATIONAL LEVELS

[illegible]

## OBJECTIVE 5: ENCOURAGE SOCIETY ENGAGEMENT AND PROMOTE OCEAN LITERACY

[illegible]



## OBJECTIVE 6: IMPROVE AND STRENGTHEN THE FUNCTIONING AND ORGANIZATIONAL STRUCTURE OF ICTS SOCIB

[illegible]



6

# **MONITORING AND EVALUATION**



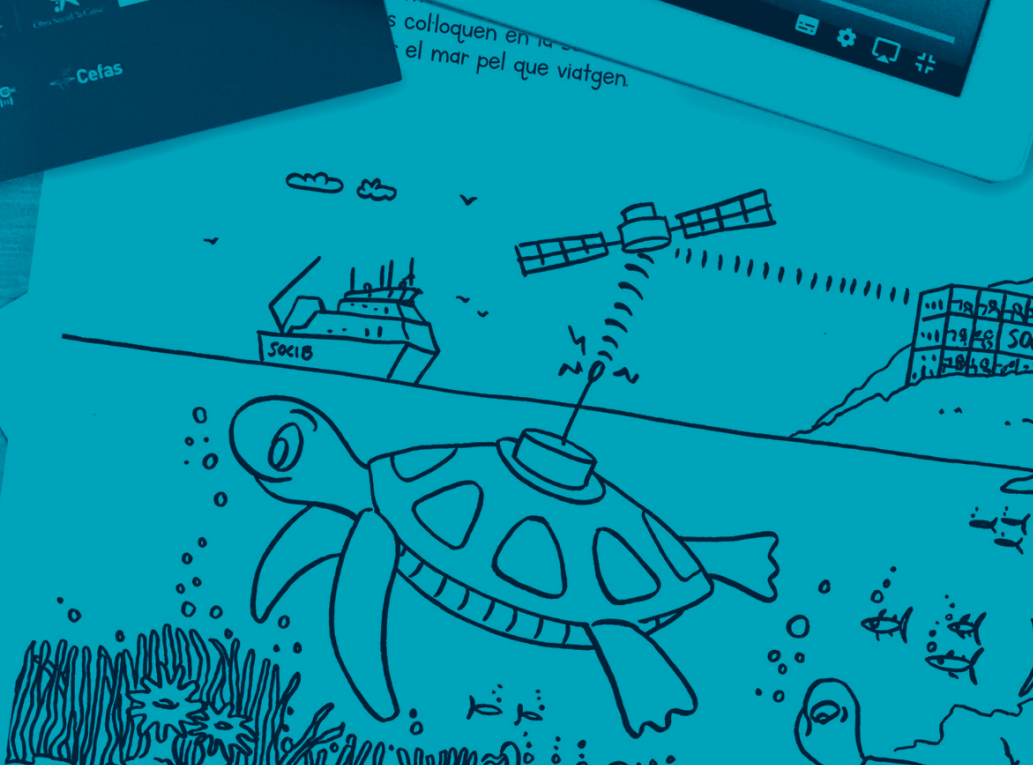
STUDENT BOOK

## EL VIENTO

Programa educativo sobre el Mediterráneo

## EL AGUA DE MAR

Programa educativo sobre el Mediterráneo



As indicated above, the present Strategic Plan proposes 6 strategic goals, 24 linked strategies, and 96 derived actions aimed at achieving these goals. Likewise, 157 indicators and 112 expected key results or outcomes are proposed for the specific actions enabling a continuous and effective evaluation and monitoring.

The follow-up actions of this Strategic Plan will be planned and coordinated by the Monitoring Commission that will be established for this purpose under the coordination of ICTS SOCIB and formed by the heads of the Facilities and Services. The monitoring will be performed every 6 months and will provide relevant information to facilitate decision making to adjust or correct the performance of the Strategic Plan. The monitoring will contemplate all relevant aspects of the execution of the Strategic Plan, including:

- > The fulfillment of the specific actions through the analysis of the related indicators.
- > The verification of the status of planned activities, improvement commitments, and results obtained.
- > The revision and assignment of responsibilities and functions to the different actors involved in the execution of the Strategic Plan.
- > The analysis of difficulties detected and, if necessary, the corrections made.
- > The revision of the economic-financial situation of the Plan and the real expenses made in relation to the requested and accepted budget.

As a summary, an annual Action Plan Follow-up Evaluation Report will be prepared and submitted for approval to ICTS SOCIB's governing bodies (Executive Committee and Board of Trustees) and the International Scientific Steering Committee. Furthermore, at the end of the period of application of the Strategic Plan, in December 2024, a Final Evaluation will be prepared to assess the provisions established with the data related to the implementation of the Plan. Its objective is to verify the effective accomplishment of the planned actions and, consequently, of the strategic objectives of the Plan. The Director will report on the Final Evaluation to the Executive Committee and the and the International Scientific Steering Committee. It will also serve as the basis for the preparation of the next Plan, corresponding to the period 2025-2028.

Listed below are the 157 indicators (5 indicators are shared between the different objectives) that will be used for ongoing evaluation and compliance with the 2021-2024 Strategic Plan.

OBJECTIVES	NUMBER OF INDICATORS
1. Enhance ICTS SOCIB's ocean observing and forecasting capacities and reinforce Competitive Open Access	<b>60</b>
2. Boost the visibility, accessibility, and usability of oceanographic data	<b>37</b>
3. Promote social, economic, and environmental impacts through value-added ocean products and services	<b>19</b>
4. Support and contribute excellence in marine and coastal research at the regional, national, and international levels	<b>18</b>
5. Encourage society engagement and promote Ocean Literacy	<b>12</b>
6. Improve and strengthen the functioning and organizational structure of ICTS SOCIB	<b>18</b>

**Indicators related to OBJECTIVE 1:** Enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access:

1. Number of gliders available
2. Number of international monitoring missions
3. Number of missions performed
4. Number of days of glider operations
5. Number of nautical miles flown
6. Total no. of CTD profiles
7. Volume of data from new sensors
8. Number of EOVs and/or supporting and derived variables
9. Number of new EOVs, sub-variables and supporting variables
10. Total number of EOVs measured, sub-variables and supporting variables
11. Number of uCTD data
12. Volume of TA for the R/V SOCIB
13. Number of operational days per station per year
14. Volume of data acquired
15. Number of stations renewed
16. Number of new instruments acquired
17. Number of data and stations' reports
18. Number of surface drifters deployed per year
19. Number of profilers deployed per year
20. Number of active surface drifters per year
21. Number of active profilers per year
22. Number of days of data (surface drifters)
23. Number of vertical profilers
24. Number of days of profiler observation
25. % time in operation during the period and since the start

26. Number of days in operation during the period
27. % area coverage
28. Number of deployments
29. Number of on-site visits for maintenance
30. Number of QulDs automatic reports
31. Number of models assimilating the HFR-Ibiza data
32. Number of models validated against HFR-Ibiza at operational basis
33. Number of public/private institutions integrating HFR-Ibiza data at operational basis
34. Number of services including the HFR-Ibiza data
35. Increase in the number of EOVS
36. Number of ICTS SOCIB data products
37. Number of days of WMOP model predictions and reanalysis
38. Number of days of BRIFS model predictions
39. Results of BRIFS ensemble predictions displayed on SOCIB website
40. Number of days of SAPO model predictions for the Balearic Islands coastal areas
41. Number of collaborative process study missions
42. Number of papers
43. Number of collaborations established
44. Number of calls/projects
45. Number of T&S&O2 Argo floats deployed
46. Number of active T&S&O2 Argo floats per year
47. Number of days of float observation
48. Number of days performed with hydrophones
49. Amount of RT data
50. Number of HFR radial sites installed
51. Volume of the area covered by the new HFR-Ibiza system
52. Number of areas and days of simulations with very high resolution
53. Number of campaigns in competitive access to the R/V SOCIB
54. Total number of navigation days in competitive access to the R/V SOCIB
55. Total number of campaigns in competitive access to the Glider fleet
56. Total number of navigation days in competitive access to the Glider fleet
57. Total number of applications
58. Number of intercalibration exercises
59. Number of accesses
60. Number of users

**Indicators related to OBJECTIVE 2:** Boost the visibility, accessibility and usability of oceanographic data:

1. Level of completeness of the Data Management Program (in terms of DMM model defined process areas).
2. Number and temporary extent of QCed variables.
3. Reaction time for facilities' maintenance operations



4. Number of SOCIB related Observation Programs not following a Data Management Plan
5. Level of compliance of the Data Policy
6. Number of catalogued resources
7. Number of FAIR resources
8. FAIR metrics to be defined along the Strategic Plan
9. Volume of Glider data operational in the European format
10. Volume of data analysed/produced
11. Volume of data shared under these strategies
12. Volume of standardized HFR near-real-time data available in the different portals
13. Volume of standardized reprocessed HFR data available in the different portals
14. Level of operativity of the data stream
15. Number of surface drifters analysed
16. Number of profilers analysed
17. Application to the CoreTrustSeal certification process
18. Application to ADU accreditation
19. Data policy update
20. Number of citations
21. Number of citations of SOCIB resources with DOIs
22. Number of acknowledgments
23. Number of open access agreements/adhesions signed
24. Number of total views (results and data) per region, country, and city
25. Number of downloads per region, country, and city
26. Number of resources included in DIGITAL.CSIC
27. Specific KPIs for each type of resource with a DOI
28. Number of DOIs assigned: to scientific contributions, to technical contributions, to educational/didactic contributions and, to Data Products
29. Number of smart alternatives implemented
30. Number of potential failures detected
31. Number of results/derived tools or products obtained/ developed
32. Satellite images-extracted shorelines database
33. Number of papers
34. Volume of data ingested into SeaDataNet
35. Volume of data ingested into EMODnet
36. Volume of data ingested into CMEMS InSitu TAC
37. Volume of data ingested into Argo DataBase

**Indicators related to OBJECTIVE 3:** Promote social, economic, and environmental impacts through value-added ocean products and services:

1. Number of uses, applications, and exploitations of knowledge and data generated
2. RRI-related products in response to economic, environmental, and social needs
3. Participation in fairs, forums and events
4. Number of multi-stakeholder and sector-specific synergies and collations established

5. Number of requests received
6. Number of strategic services, products and applications developed
7. Number of improvements implemented
8. Number of papers
9. Number of views/downloads
10. Number of tools (indicators and maps) developed
11. Number of new data sources integrated
12. Number of updated data sources
13. Number of sectoral needs identified
14. Number of meetings/events conducted
15. Number of new products and services designed
16. Number of long-term glider observations' derived products
17. Number of datasets downloaded or requested through the data viewer
18. Volume of data produced
19. Number of local authorities with which toolbox is shared

**Indicators related to OBJECTIVE 4:** Support and contribute excellence in marine and coastal research at the regional, national, and international levels:

1. Number of institutions with which ICTS SOCIB collaborates
2. Number of collaborative projects
3. Number of collaborative events
4. Number of papers
5. Indicators and maps developed
6. Number of cruises
7. Number of physical and biogeochemical vertical profiles for each year
8. Data collected
9. Number of established procedures
10. Number of uses
11. Number of participation in international projects and initiatives related to OBP
12. Number of requests received from students
13. Number of requests received by universities
14. Number of Master's Thesis supervised by ICTS SOCIB staff
15. Number of TFGs supervised by ICTS SOCIB staff
16. Number of trainees supervised by ICTS SOCIB staff
17. Number of educational activities involving ICTS SOCIB personnel
18. Number of training activities involving ICTS SOCIB personnel

**Indicators related to OBJECTIVE 5:** Encourage society engagement and promote Ocean Literacy:

1. Number of activities organised/participated
2. Number of participants
3. Number of views/downloads

4. Number of synergies and collations established
5. Volume of data produced
6. Number of images sent
7. Number of social media managed
8. Number of followers
9. Number of posts
10. Number of resources produced
11. Emails sent
12. Opened emails

**Indicators related to OBJECTIVE 6:** Improve and strengthen the functioning and organizational structure of ICTS SOCIB:

1. Staff retention/rotation rate
2. Number of actions implemented
3. Number of new hiring procedures implemented or ameliorated
4. Number of participants in regional and national calls (postdoctoral contracts, PTA...)
5. Number of training opportunities offered to the staff and participants
6. Number of visits
7. Number of activities
8. Number of resources
9. Number of uses
10. Number of IT tools implemented
11. Number of tools implemented
12. Number of contents published
13. Number of unique users
14. Time of permanence
15. Number of updated corporate material
16. Number of activities related with the construction, equipment, moving and social presentation
17. Number of projects or programmes to address new headquarters' opportunities
18. Number of participants



7

## RESOURCES







To achieve the 2021-2024 Strategic Plan, and the real execution of the 6 objectives, 24 strategies and the related 96 actions, resources are required for both personnel and infrastructure investments.

In the Investment Plan for 2021-2024, related to these objectives, the ICTS SOCIB is asking for approximately 14 million €. Table below provides further details on the facilities and services and the type of investments. A significant part of the investment, around 5.5 M€, is for the priority renewal of infrastructure that has passed its depreciation time (more than 10 years). Another substantial part, 7,25 M€, is linked to the new building for the ICTS SOCIB, and finally a lesser but nonetheless important part, around 1,5 M€, is required for predicting obsolescence and maintaining an increase in capacities, which are considered to be reasonable to accomplish the trajectory of the ICTS SOCIB.

Again, all this investment will need to be accompanied by a staff increase especially for the unique or exceptional facilities; which should necessarily be 20% (i.e. 6 people). It is important to note that there has been no increase in personnel since 2010 when SOCIB formally started.

FACILITY/ SERVICE	TYPE OF INVESTMENTS	EUROS
Fixed Station Facility	Oceanographic buoys (3), Sea level stations updates	940.000
Lagrangian Platform Facility	Surface drifters (32), Argo profilers (12)	308.000
Modelling and Forecasting Facility	Computing cluster, High performance computing server	530.000
Beach Monitoring facility	Current stations infrastructure, Computational module, Laboratory equipment	515.000
Glider facility	Gliders, Science boys, pressure chamber	2.489.100
HF Radar Facility	Renewal HFR Ibiza network, new HFR radial site in Cap de la Nau, Upgrading CODAR	763.700
Engineering and Technology Division	RTK system, Small boat, Diving equipment	100.000
IT Service	General servers, Storage system, backup system, etc.	725.000
Biogeochemical Laboratory	CDOM sensor, UV absorption nitrate sensor, Bio CTD sensors, Spectrophotometer, flow cam system, flow cytometer	505.000
	<b>TOTAL</b>	<b>6.875.800</b>
ICTS SOCIB New building	General and Labs furniture, optical fiber connection (Balearic Gov), IT infrastructure, Laboratory equipment	7.250.000
	<b>TOTAL</b>	<b>14.125.800</b>

**Investment Plan** 2021-2024 in ANNEX I.



Satélites

Censo de datos

ARGO  
flador

Boya de deriva  
superficial

Roseta - CTD

Gliders





**ANNEX I.  
INVESTMENT PLAN  
2021-2024**



## MAPA ICTS-2021-024/ ICTS SOCIB INVESTMENT PLAN

**ICTS:** Balearic Islands Coastal Observing and Forecasting System

**Typology:** Single-sited RI

**Estatus:** Operative

SOCIB was included in the Spanish Large-Scale Infrastructures Map in 2014 and is now a well-established international multi-platform observing and forecasting Research Infrastructure.

In this Annex we present the SOCIB Investment Plan for 2021-2024. We are conscious that there is a significant jump between the previous Investment Plan (2017-2020) and the present Investment Plan, which results from the coincidence of three major factors in SOCIB's evolution. First, the 10-year depreciation time since the first investments were made, and the inevitable need to replace and update essential marine equipment supporting SOCIB operations. Secondly, the need to expand and update our existing observing and forecasting capacities, to avoid obsolescence and allow the continued expansion of SOCIB's contribution to society. Thirdly the requirement for SOCIB to move to the new building in Palma Harbour, likely to happen in the second half of this investment period.

The total amount included in the SOCIB Investment Plan is worth 14.125.800 €.

FACILITY/ SERVICE	TYPE OF INVESTMENTS	EUROS
Fixed Station Facility	Oceanographic buoys (3), Sea level stations updates	940.000
Lagrangian Platform Facility	Surface drifters (32), Argo profilers (12)	308.000
Modelling and Forecasting Facility	Computing cluster, High performance computing server	530.000
Beach Monitoring facility	Current stations infrastructure, Computational module, Laboratory equipment	515.000
Glider facility	Gliders, Science boys, pressure chamber	2.489.100
HF Radar Facility	Renewal HFR Ibiza network, new HFR radial site in Cap de la Nau, Upgrading CODAR	763.700
Engineering and Technology Division	RTK system, Small boat, Diving equipment	100.000
IT Service	General servers, Storage system, backup system, etc.	725.000
Biogeochemical Laboratory	CDOM sensor, UV absorption nitrate sensor, Bio CTD sensors, Spectrophotometer, flow cam system, flow cytometer	505.000
	<b>TOTAL</b>	<b>6.875.800</b>
ICTS SOCIB New building	General and Labs furniture, optical fiber connection (Balearic Gov), IT infrastructure, Laboratory equipment	7.250.000
	<b>TOTAL</b>	<b>14.125.800</b>

Also, the investments can be divided in the following 3 major categories:

- > 6.64 M€ corresponds to High priority investments
- > 3.24 M€. corresponds to Medium priority investments
- > 4.25 M€ corresponds to Low priority investments

Finally, the investments can be divided by its Type: 1- to maintain operability, 2- to increase capacities, and 3- other investments

- > 3.90 M€ corresponds to Type 1 investments
- > 2.90 M€ corresponds to Type 2 investments
- > 7.25 M€ corresponds to Type 3 investments

In this document there are one per one the investments that SOCIB is willing to achieve in the 2021-2024 period, in high, medium or low priority.



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_FSF_001		Acquisition of 3 oceanographic buoys	
DESCRIPTION OF THE INVESTMENT PROJECT			
To guarantee the continuity of moored oceanographic and meteorological measurements 365 days a year, it is important to replace the 2 buoys, one in the bay of Palma and the other in the Ibiza Channel, after 10 years of their acquisition. Also, a spare buoy will be deployed as an additional buoy for temporary access by other institutions when required (e.g. IMEDEA) or European projects (e.g. EMSO-ERIC). in the benefit of the investment project ensuring the continuity of the time series where instruments are otherwise reaching the end of their life time and then the second reason is expanding the open access to the SOCIB system of observing systems.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access.			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
Fixed Stations Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE	
Y	40.000,00	01/10/2023	
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT	
3	High	Balearic Islands	
BENEFITS OF THE INVESTMENT PROJECT			
Ensure the continuity of time series that are being recorded, especially for those mooring stations whose elements are reaching the limit of their lifetime.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_FSF_002		Update and renew SeaLevelStations
DESCRIPTION OF THE INVESTMENT PROJECT		
Update high-resolution sea-level measurements instruments to obtain sea level by radar instead of pressure difference. Renew instrumentation and communications components as necessary.		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Fixed Stations Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	40.000,00	01/10/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Ensure accurate real time data for sea-level and atmospheric pressure. Particularly important for modelling applications and products (e.g. Ocean/Atmospheric models, Risaga alerts, Seismic alerts, etc. )		



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_ETD_001		Acquisition of a small boat (6 meter) with outboard engine and trailer
DESCRIPTION OF THE INVESTMENT PROJECT		
Replacement of the old small boat (Valiant 620DR, year 2000) to continue providing reliable technical support particularly for bathymetric beach monitoring, Glider deployments and other coastal interventions		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB’s Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Engineering and Technology Development Division		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	45.000,00	01/01/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
To provide excellent technical service and a fast response to the requirements of other facilities and external clients, etc.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_ETD_002		Acquisition of a new diving equipments	
DESCRIPTION OF THE INVESTMENT PROJECT			
Personnel diving equipment is becoming obsolete and needs to be replaced. Updating equipment according to safety rules. Increasing the diving tools available for the support of SOCIB.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
i			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE	
N	25.000,00	01/04/2022	
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT	
1	High	Balearic Islands	
BENEFITS OF THE INVESTMENT PROJECT			
Ensuring that personnel diving equipment are according to the latest standard and comply with all safety regulations.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_ETD_003		Acquisition of motion sensor and RTK system for bathymetry applications and geolocalisation.	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquire an additional motion sensor system including RTK (GPS) for bathymetric and coast lines surveys.			
TYPE OF INVESTMENT			
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.2. Expand and enhance observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
Engineering and Technology Development Division			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	30.000,00		01/03/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
2	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
Ensuring high resolution motion data acquisition and geolocation for bathymetric surveys on small boats (Valiant/Hurricane) and RV SOCIB			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_ETD_003		Acquisition of motion sensor and RTK system for bathymetry applications and geolocalisation.
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquire an additional motion sensor system including RTK (GPS) for bathymetric and coast lines surveys.		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Engineering and Technology Development Division		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	30.000,00	01/03/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
2	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Ensuring high resolution motion data acquisition and geolocation for bathymetric surveys on small boats (Valiant/Hurricane) and RV SOCIB		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_LPF_001		Updating the lagrangian fleet Projects (SVP)	
DESCRIPTION OF THE INVESTMENT PROJECT			
Purchase and deploy 8 surface drifters per year (32 total), in collaboration with the Global Drifter Program (GDP), a requirement of the LPF is to maintain an active fleet of 8 surface drifters per year.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
Lagrangian Platform Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	68.000,00		01/09/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
3	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
Ensuring the continuous and optimal operation of the SOCIB lagrangian fleet to international oceanographic data acquisition requirements.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_LPF_002		Updating the lagrangian fleet Projects (Argo floats)
DESCRIPTION OF THE INVESTMENT PROJECT		
Purchase and deploy 3 Argo floats per year (12 total) in collaboration with Euro-Argo ERIC, in which SOCIB is Spain's recognized partner, a goal of the LPF is to maintain an active fleet of 5 Argo floats per year.		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Lagrangian Platform Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	240.000,00	01/09/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Ensuring the continuous and optimal operation of the SOCIB lagrangian fleet to international oceanographic data acquisition requirements.		



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_IT_001		Acquisition of two General Servers for virtualization
DESCRIPTION OF THE INVESTMENT PROJECT		
Establish a new virtualization environment at the SOCIB Datacenter facility.		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
IT Services		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	50.000,00	01/09/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
1) Ensuring operation, affordability, efficiency and longevity of the computing system 2) Fulfilling new computing requirements for services and products		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_002		Acquisition of a new unified storage system for modelling data	
DESCRIPTION OF THE INVESTMENT PROJECT			
Replace and upgrade the storage system for operational models, installed at IMEDEA Data-center.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	30.000,00		01/12/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
3	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensure operation, affordability, efficiency and longevity of the computing system 2) Increasing storage capacity for the Modelling Facility avoiding obsolescence, ensuring data availability and reliability.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_003		Deploy a cloud backup system. Phase 1	
DESCRIPTION OF THE INVESTMENT PROJECT			
Deploy a secondary backup environment over a cloud infrastructure, to ensure data availability. This is part of Phase I of the continuity business plan and the disaster recovery plan.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB’s Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	100.000,00		01/12/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
6	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring data security, availability, reliability and continuity.			
2) Fulfill disaster recovery plan requirements and business continuity plan. Guarantee a tolerable recovery time objective.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_004		Acquisition of general IT equipment	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition of general purpose IT equipment, including laptops and personal workstations, to maintain a frontline IT infrastructure supporting SOCIB personnel, working groups, products and services throughout all facilities.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	200.000,00		01/06/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
8	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring frontline operation and maintenance of all SOCIB IT resources, including those associated with the RV SOCIB.			
2) Ensuring operation, affordability, efficiency and longevity of the IT infrastructure. Better performance and reliability, reducing downtime risks and improving user experience.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_005		Acquisition and renewal of software licenses	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition and renewal of general software licences (e.g.: office suites, pdf and design tools), scientific software (e.g.:matlab) and specialized IT software (e.g.: VMware vSphere).			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	20.000,00		01/06/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensure system operation and availability, complying with copyright and IP requirements.			
2) Ensure operation, affordability, efficiency and longevity of the IT infrastructure. Access to modern features and enhance system management.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_006		Acquisition of additional storage capacity for SOCIB unified storage system. Phase 1	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquire additional storage capacity for the main unified storage system that holds both scientific data and user-related data. Increase general storage capacity, ensuring data availability and reliability.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	20.000,00		01/01/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring operation, affordability, efficiency and longevity of the computing system.			
2) Optimize rack density storage capacity and accelerate iops performance.			



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_007		Acquisition of a new local backup storage system at SOCIB data center facility	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquire a new backup storage system to sustain the local backup at SOCIB Datacenter			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB’s Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	20.000,00		01/02/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring data security, availability, reliability and continuity.			
2) Increase storage density with high-efficiency power supplies.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_IT_008		Update SOCIB HFR IT Infrastructure
DESCRIPTION OF THE INVESTMENT PROJECT		
<p>Aligned with the previous investment related to the software upgrade, this one includes the acquisition of 5 Mac Minis (2, one for each HFR radial site, one for the central station or combine and 1 spare. Additionally, 1 additional Mac Mini as work computer for the HFR operator), 1 MacBook Pro (as a part of the work computer for the HFR operator and for field campaigns), 4 SMART UPS 1500 Battery Replacement (for 2021 and 2023). The UPS -model: SMT1500RMI2U- will be completely replaced in 2025 (6 years after of the previous installations in 2019 and just after 2 replacements of the batteries, once every 2 years)</p>		
TYPE OF INVESTMENT		
<p><b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.</p>		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access</p> <p><b>Strategy 1.1.</b> Update existing observing and forecasting capabilities</p>		
FACILITY OR SERVICE CONCERNED		
IT Services		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	15.000,00	01/01/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
<p>Update and upgrade HFR stations, including both hardware and software. Ensure operation and maintenance of SOCIB HFR IT resources. Fulfil new system requirements; specially, O.S. upgrades and new specialized software releases.</p>		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_IT_09		Acquisition of new SOCIB General Servers for Virtualization.
DESCRIPTION OF THE INVESTMENT PROJECT		
Keep the virtualization environment, that holds both general and data center services, properly updated and upgraded		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
IT Services		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	50.000,00	01/01/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
1) Ensuring operation, affordability, efficiency and longevity of the computing system		
2) Fulfilling new computing requirements for services and products		
3) Improve the capability for higuer virtual machine density and larger virtual machines, based on container orchestration.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_IT_010		Acquisition of a new local backup storage system of SOCIB at IMEDEA
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquire a new backup storage system to sustain the local backup at IMEDEA Datacenter		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
IT Services		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	20.000,00	01/03/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High, medium, low	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
1) Increasing backup storage capacity, ensuring data protection and data availability, reliability and continuity		
2) Increase storage density with high-efficiency power supplies.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_011		Deploy a cloud replicated data center. Phase 2	
DESCRIPTION OF THE INVESTMENT PROJECT			
Deploy a fully replicated on-cloud datacenter infrastructure, as a part of the continuity and the disaster recovery plan. This is Phase II of the continuity business plan and the disaster recovery plan.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE	
N	100.000,00	01/11/2022	
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT	
6	High	Balearic Islands	
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensure data protection, and data availability and reliability.			
2) Fulfill disaster recovery plan requirements and business continuity plan. Guarantee a tolerable recovery time objective.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_012		Acquisition of additional storage capacity for SOCIB unified storage system installed at IMEDEA Datacenter.	
DESCRIPTION OF THE INVESTMENT PROJECT			
Increase the storage capacity for the main unified storage system installed at IMEDEA, which stores user and general data. Increase general storage capacity, ensuring data availability and reliability			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	30.000,00		01/02/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensure operation, affordability, efficiency and longevity of the computing system.			
2) Optimize rack density storage capacity and accelerate iops performance.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_013		Acquisition of a new remote backup storage system of SOCIB at IMEDEA	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquire a new backup storage system to sustain the remote backup, from data stored at SOCIB datacenter through IMEDEA Datacenter. Increase backup storage capacity			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB’s Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	20.000,00		01/03/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring data protection, data availability, reliability and continuity.			
2) Ensure operation, affordability, efficiency and longevity of the computing system. Increase storage capacity and optimize rack density.			



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_IT_014		Acquisition of additional storage capacity for SOCIB unified storage system (avalon). Phase 2	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquire additional storage capacity for the main unified storage system that holds both scientific data and user-related data. Increase general storage capacity, ensuring data availability and reliability.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
IT Services			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	50.000,00		01/01/2024
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
3	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring operation, affordability, efficiency and longevity of the computing system			
2) Optimize rack density storage capacity and accelerate iops performance.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_MFF_001		Computing server for the Modelling Facility	
DESCRIPTION OF THE INVESTMENT PROJECT			
This server would complement the present VINSON server which is now used at full capacity to generate data-assimilative WMOP predictions and reanalysis. This would replace the obsolete serial modelling server EREBUS.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. iTo enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access.			
Strategy 1.1. Update existing observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
Modelling and Forecasting Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	30.000,00		01/10/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1)Enabling the generation of data-assimilative WMOP simulations.			
2) Ensuring operation, affordability, efficiency and longevity of the modelling computing system.			
3) Fulfilling new computing requirements for services and products for Modelling Facility.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_MFF_002		Computing cluster for the Modelling Facility
DESCRIPTION OF THE INVESTMENT PROJECT		
Replacement of the obsolete waverider high performance computing cluster for the operational WMOP and BRIFS prediction systems		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Modelling and Forecasting Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	350.000,00	01/06/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
This high-performance cluster will maintain and improve the BRIFS and WMOP operational systems at SOCIB, and allow retrospective simulations.		
1) Ensuring operation, affordability, efficiency and longevity of the HPC system.		
2) Fulfilling new computing requirements for Modeling Facility.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_MFF_003		High-performance computing server for the Modelling Facility
DESCRIPTION OF THE INVESTMENT PROJECT		
This server will complement the new server purchased in 2021 to allow a significant increase in model resolution and ensemble prediction for the BRIFS system.		
TYPE OF INVESTMENT		
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.2. Expand and enhance observing and forecasting capabilities.		
FACILITY OR SERVICE CONCERNED		
Modelling and Forecasting Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	150.000,00	01/04/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High, medium, low	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
1)Enabling upgraded, higher resolution BRIFS ensemble forecasting		
2) Ensure operation, affordability, efficiency and longevity of the modelling computing environment		
3) Fulfilling new computing requirements for Modeling Facility.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_001		BMF renewal of instrumentation
DESCRIPTION OF THE INVESTMENT PROJECT		
Provision of 2 back-up AWACs and implementation of the use of rechargeable batteries.		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities.		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	60.000,00	01/06/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
1) Ensuring the continuity of measurements wave conditions and 2) the implementation of a more environmentally conscious -greener- rechargeable batteries systems		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_002		RasPiCam system
DESCRIPTION OF THE INVESTMENT PROJECT		
Purchase and deployment of the RasPiCam system as the new video-monitoring method		
TYPE OF INVESTMENT		
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.2. Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	20.000,00	01/09/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Improvement of current SIRENA system: open-source, low-cost, updated.		



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_003		CoastSnap Project
DESCRIPTION OF THE INVESTMENT PROJECT		
Construction and deployment of CoastSnap Stations		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	40.000,00	01/04/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Expand the number of monitored beaches by means of citizen science projects.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_004		BMF Renewal of current stations infrastructure
DESCRIPTION OF THE INVESTMENT PROJECT		
Renewal of infrastructure of video-monitoring systems.		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	50.000,00	01/01/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Ensure continuity of the long-term beach monitoring program.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_005		Real-Time Wave Acoustic profiler
DESCRIPTION OF THE INVESTMENT PROJECT		
Deployment of the structure for a Real-Time AWAC		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	150.000,00	01/05/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Provide Real-Time Wave Data streaming		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_006		Laser Grain-Size Analyzer
DESCRIPTION OF THE INVESTMENT PROJECT		
Renewal of the Laser Grain-Size Analyzer (for new building laboratory)		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB’s Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	50.000,00	01/01/2024
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Ensure continuity of long-term grain-size analysis		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

<b>INVESTMENT PROJECT CODE</b>		<b>INVESTMENT PROJECT NAME</b>
ICTS_SOCIB_BMF_007		Sediment drying oven
<b>DESCRIPTION OF THE INVESTMENT PROJECT</b>		
Renewal of the sediment drying oven (for new building laboratory).		
<b>TYPE OF INVESTMENT</b>		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
<b>RELATED OBJECTIVES AND STRATEGIES</b>		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.1.</b> Update existing observing and forecasting capabilities		
<b>FACILITY OR SERVICE CONCERNED</b>		
Beach Monitoring Facility		
<b>OUTSTANDING FACILITY? (Y/N)</b>	<b>ESTIMATED COST</b>	<b>FORESEEN START DATE</b>
Y	5.000,00	01/01/2024
<b>EXPECTED DURATION IN MONTHS</b>	<b>GENERAL PRIORITIZATION WITHIN ICTS</b>	<b>LOCATION OF THE INVESTMENT PROJECT</b>
1	High	Balearic Islands
<b>BENEFITS OF THE INVESTMENT PROJECT</b>		
Ensure continuity of long-term grain-size analysis		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_BMF_008		Beach Monitoring computational module	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition of a server machine to enhance modeling capacities of the Beach Monitoring (at the new building).			
TYPE OF INVESTMENT			
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS			
RELATED OBJECTIVES AND STRATEGIES			
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
<b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
Beach Monitoring Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	40.000,00		01/01/2024
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
Increase modelling capacities of near-shore processes such beach response to wave extreme events			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BMF_009		RTK-GPS System
DESCRIPTION OF THE INVESTMENT PROJECT		
Renewal of the Real-Time Kinematics GPS for Beach topography		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Beach Monitoring Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	100.000,00	01/01/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
8	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Ensuring continuity of the bi-annual beach topographic bathymetry assessments		



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_001		CDOM sensor for the CTD
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a CDOM sensor for the CTD to support the new BGC sampling with gliders in the Canales Endurance Line		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry and R/V SOCIB		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	15.000,00	01/04/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of a new CDOM sensor for the RV SOCIB is important in order to support the new glider BGC sampling in the Endurance canales lines. This sampling will be supported by the laboratory as well.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_002		UV absorption nitrate sensor either a) off the shelf or b) development for low concentration Mediterranean waters and science bay glider operation
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a new nitrate sensor for the RV SOCIB		
TYPE OF INVESTMENT		
Type 3: Other investments		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access</p> <p><b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities</p>		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry and R/V SOCIB		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	30.000,00	01/04/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of a nitrate sensor will allow to get nitrate/nitrite concentration in the Canales Endurance lines and make progress towards a science bay based nitrate sensor for gliders in low nutrient waters.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_003		Backup bio CTD sensors, dissolved oxygen and a Y cable
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a new oxygen sensor for the RV SOCIB and a Y cable as backup		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry and R/V SOCIB		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	20.000,00	01/04/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of bio CTD sensors as backup will avoid unforeseen monitoring downtime during periods of repair and calibration		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_004		Bio-UCTD
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a Bio-UCTD to intercompare and monitor between stations		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry and R/V SOCIB		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	180.000,00	01/04/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of Bio-UCTD to intercompare and monitor between stations will help to put back the physical measurements that have been reduced due to plastic sampling. In addition, it will enable high resolution synoptic mesoscale surveys of 3 D pathway mechanisms within the Balearic Sea		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_005		Spectrophotometer with quartz cuvettes
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a spectrophotometer for chlorophyll a and CDOM calibrations and measurements		
TYPE OF INVESTMENT		
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities.		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry laboratory		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	15.000,00	01/04/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
This instrument will avoid downtime due to calibration and also will support the new glider vehicles that have been fitted with CDOM sensors.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_006		CDOM ultrapath measurement system
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a new instrument to measure CDOM in oligotrophic waters		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities.		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry laboratory		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	10.000,00	01/04/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The new glider vehicles have been fitted with CDOM sensors that require laboratory support		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_BQ_007		Backup for oxygen titration (oxygen cell Metrohm) and alkalinity cell	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition of a new instrument to measure Dissolved oxygen and alkalinity.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities			
FACILITY OR SERVICE CONCERNED			
Biogeochemistry laboratory			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	25.000,00		01/014/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
The acquisition of an instrument as backup for oxygen titration will avoid unforeseen monitoring downtime during periods of repair and calibration and it will support the monitoring for measuring pH trends			



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_008		Flow cam system
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a new instrument to analyse phytoplankton and microplastics		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry laboratory		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	50.000,00	01/014/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of this instrument will allow to examine phytoplankton and microplastic samples on Canales dedicated programs and obtain real time pictures		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_009		Microscope
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a new instrument to examine phytoplankton samples and microplastics		
TYPE OF INVESTMENT		
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.2. Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry laboratory		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	10.000,00	01/04/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
1	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of this instrument will allow to examine phytoplankton and microplastic samples on Canales dedicated programs		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_BQ_010		Flow cytometer
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of a new instrument to examine nanoand pico phytoplankton samples and plastics		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.2.</b> Expand and enhance observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Biogeochemistry laboratory		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	150.000,00	01/04/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
The acquisition of this instrument will allow to examine phytoplankton and microplastic in the small size range (um) samples on Canales dedicated programs		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_New_Building_01		NEW BUILDING: Full provision of IT infrastructure to new building	
DESCRIPTION OF THE INVESTMENT PROJECT			
1) Acquire and install complete IT infrastructure at the new building, including general equipment and datacenter infrastructure			
2) Maintain the general IT infrastructure and provide the required equipment to SOCIB staff, including all facilities			
3) Ensure operation and maintenance of SOCIB IT resources			
TYPE OF INVESTMENT			
Type 3: Other investments			
RELATED OBJECTIVES AND STRATEGIES			
Objective 6. To improve and strengthen the functioning and organizational structure of ICTS SOCIB			
Strategy 6.4. Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society			
FACILITY OR SERVICE CONCERNED			
SOCIB New Building			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	1.000.000,00		01/01/2024
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
12	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
1) Ensuring data security, availability and reliability			
2) Ensure affordability, efficiency and longevity of the C&IT system.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_GF_001		New Gliders 2021	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition of two new autonomous underwater glider vehicles (AUV) to maintain the frontline instrumental and platform capability of SOCIB's monitoring and research programs; always seeking to expand the biogeochemical and physical EOVS measuring capacity.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
Glider Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	380.000,00		01/07/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
6	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
To maintain and expand our monitoring and research capacity, with new regions and additional monitoring lines.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_002		Glider Science bay 2021
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of four Glider science bays with physical and biochemical sensors		
TYPE OF INVESTMENT		
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
Strategy 1.1. Update existing observing and forecasting capabilities		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	197.487,60	01/07/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
To maintain high quality observations science bays and their sensors must be returned frequently for factory calibration.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_005		Pressure chamber
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of one high-pressure chamber, with the capacity to accept different types of glider vehicles for simulating the deep-sea operational environment.		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access  <b>Strategy 1.3.</b> Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet.		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	35.000,00	01/03/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
3	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Minimizing the risk of ocean glider leakage in the field.		



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_GF_006		Portable CTD	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition of two portable CTD's to perform parallel tests of the sensors in the ballasting tank and the fied.			
TYPE OF INVESTMENT			
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.3. Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet.			
FACILITY OR SERVICE CONCERNED			
Glider Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE	
Y	26.600,00	01/07/2021	
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT	
1	High	Balearic Islands	
BENEFITS OF THE INVESTMENT PROJECT			
Ensuring correct sensor operation prior to the deployment of the glider vehicles.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_007		New Gliders 2022
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of two new autonomous underwater glider vehicles (AUV) to maintain the frontline instrumental and platform capability of SOCIB's monitoring and research programs; always seeking to expand the biogeochemical and physical EOVS measuring capacity..		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access</p> <p><b>Strategy 1.3.</b> Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB &amp; Glider fleet.</p>		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	380.000,00	01/07/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
To investigate and get insights into the mesoscale and submesoscale circulation of the Mediterranean Sea, we need to monitor different areas within the basin at the same time.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_GF_008		Glider rechargeable batteries 2022	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquisition of ten lithium battery packs to enable the annual continuity of glider operations.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB’s Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
Glider Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE	
Y	140.709,90	12/01/2022	
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT	
2	High	Balearic Islands	
BENEFITS OF THE INVESTMENT PROJECT			
To investigate and get insights into the mesoscale and submesoscale circulation of the Mediterranean Sea, we need to monitor different areas within the basin at the same time.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_008		Glider rechargeable batteries 2022
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of ten lithium battery packs to enable the annual continuity of glider operations.		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities.		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	140.709,90	12/01/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
4	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Lithium batteries are necessary for the function and performance of ocean gliders. Operating gliders for long periods, we will be able to understand and observe changes in the physical and biogeochemical processes of the marine ecosystem.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_GF_009		Van	
DESCRIPTION OF THE INVESTMENT PROJECT			
One vehicle for carrying ocean glider vehicles and equipment for field work deployment and recovery.			
TYPE OF INVESTMENT			
Type 3: Other investments			
RELATED OBJECTIVES AND STRATEGIES			
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
<b>Strategy 1.3.</b> Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet.			
FACILITY OR SERVICE CONCERNED			
Glider Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	25.000,00		01/06/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
1	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
A new van will increase the flexibility of transportation of glider vehicles.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_010		Glider rechargeable batteries 2023
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of ten lithium batteries for the yearly need of glider operations.		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access.</p> <p><b>Strategy 1.3.</b> Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB &amp; Glider fleet.</p>		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	140.709,90	01/07/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
4	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Lithium batteries are necessary for the function and performance of ocean gliders. Operating gliders for long periods, we will be able to understand and observe changes in the physical and biogeochemical processes of the marine ecosystem		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_012		Glider Science bay 2024
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of four Glider science bays with physical and biochemical sensors.		
TYPE OF INVESTMENT		
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.3.</b> Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB & Glider fleet.		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	197.487,60	01/07/2024
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
To maintain high quality observations and maintain our sensors we need to have spare science bays that will give us the possibility to monitor for long periods our study area.		



## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_013		Glider rechargeable batteries 2024
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of ten lithium batteries for the yearly needs of glider operations.		
TYPE OF INVESTMENT		
<b>Type 1:</b> Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access		
<b>Strategy 1.1.</b> Update existing observing and forecasting capabilities.		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	140.709,90	01/07/2024
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
4	High	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Lithium batteries are necessary for the function and performance of ocean gliders. Operating gliders for long periods, we will be able to understand and observe changes in the physical and biogeochemical processes of the marine ecosystem.		

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_HFR_001		Renewal of the HFR-Ibiza network infrastructure	
DESCRIPTION OF THE INVESTMENT PROJECT			
This investment includes the replacement of the two radial sites transmitting at 13.5 MHz, cabling, electronic chassis for the reception and transmission of HF signal, computer and software for data acquisition after 10 years of original installation in June 2012.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
HF radar Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	77.700,00		01/01/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
6	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
This specific investment will address maintenance and replacement of the aging infrastructure, thereby avoiding the risk of failure of the facility.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_HFR_003		Upgrading of the CODAR SeaSonde software for HFR-Ibiza	
DESCRIPTION OF THE INVESTMENT PROJECT			
This IT includes the acquisition of the new release of CODAR SeaSonde Radial Suite and Combine Suite software, the installation and the configuration as well as the system optimization. The new release includes upgraded viewer interfaces and robust data access, improvement of wave processing and quality control and new radial web server.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
HF radar Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	78.000,00		01/07/2022
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
4	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
This specific investment will ensure the compatibility of the software with the hardware that are currently available on the market, with the already available ARM-based processors and with the rapidly evolving Mac Operating Systems.			

## 1. INVESTMENTS RELATED WITH HIGH PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_HFR_004		Acquisiton of satellite-tracked Lagrangian surface drifters	
DESCRIPTION OF THE INVESTMENT PROJECT			
The biannual acquisition of Lagrangian surface drifters for HFR calibration and validation cam- paigns will allow the assessment of the HFR platform performance, and ocean models skill, by routine comparison between satellite-tracked drifter and the HFR derived current velocities.			
TYPE OF INVESTMENT			
Type 1: Investments that make it possible to maintain the operability and / or capacities of the essential facilities available, and avoid obsolescence.			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.1. Update existing observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
HF radar Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
Y	28.000,00		22/03/2021
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
2	High		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
This biannual investment will help to validate the HFR performance and model skill; to analyze all representative spatio-temporal scales of surface circulation; to study the dispersion of sur- face particles with models and HFR.			

## 2. INVESTMENTS RELATED WITH MEDIUM PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_GF_011		New Gliders 2024
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquisition of four new autonomous underwater glider vehicles (AUV) to maintain the front-line instrumental and platform capability of SOCIB's monitoring and research programs; always seeking to expand the biogeochemical and physical EOY measuring capacity.		
TYPE OF INVESTMENT		
<b>Type 2:</b> Investments aimed at increasing the capacities of the essential facilities of the ICTS		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 1.</b> To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access</p> <p><b>Strategy 1.3.</b> Increase the number of competitive accesses to ICTS SOCIB Unique Facilities: R/V SOCIB &amp; Glider fleet</p>		
FACILITY OR SERVICE CONCERNED		
Glider Facility		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
Y	660.000,00	01/06/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
6	Medium	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
To expand our monitory areas with new ones and sustain previous glider lines		

## 2. INVESTMENTS RELATED WITH MEDIUM PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_HFR_002		New HFR radial sites Installation in Cap de la Nau	
DESCRIPTION OF THE INVESTMENT PROJECT			
This investment comprises the full installation of two radial sites transmitting at 13.5 MHz in Cap de la Nau (Jàvea, Alicante), including civil engineering and work, electric power supply for the equipment installed, installation of the communication system, installation of the cooling system, handling of all licenses and administrative permits and authorization needed for the installation, integration of the new radial sites in the central stations of the existing system and commissioning. These new radial sites would include the latest software versions available. Hardware and software of the AIS-Auto-APM is also included in the final price.			
TYPE OF INVESTMENT			
Type 2: Investments aimed at increasing the capacities of the essential facilities of the ICTS			
RELATED OBJECTIVES AND STRATEGIES			
Objective 1. To enhance ICTS SOCIB's Ocean Observing and Forecasting Capacities and reinforce Competitive Open Access			
Strategy 1.2. Expand and enhance observing and forecasting capabilities.			
FACILITY OR SERVICE CONCERNED			
HF radar Facility			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE	
Y	580.000,00	01/01/2023	
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT	
10	Medium	Balearic Islands	
BENEFITS OF THE INVESTMENT PROJECT			
This extraordinary investment will extend the current HF radar coverage in the Ibiza Channel until the continental shelf of the Spanish mainland. These new deployments will be managed in cooperation with the Spanish Port System (similarly to the approach followed for other Spanish HFR systems: HFR-Ebro, HFR-Galicia, HFR-Estrecho de Gibraltar)			

## 2. INVESTMENTS RELATED WITH MEDIUM PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_New_Building_02		NEW BUILDING: general furniture
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquire all the furniture necessary for the SOCIB new building.		
TYPE OF INVESTMENT		
Type 3: Other investments		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 6..</b> To improve and strengthen the functioning and organizational structure of ICTS SOCIB.</p> <p><b>Strategy 6.4.</b> Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society.</p>		
FACILITY OR SERVICE CONCERNED		
SOCIB New Building		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	500.000,00	01/05/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
8	Medium	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
To allow office SOCIB activities to continue with little interruption to service.		



## 2. INVESTMENTS RELATED WITH MEDIUM PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME	
ICTS_SOCIB_New_Building_03		NEW BUILDING: labs furniture and equipment	
DESCRIPTION OF THE INVESTMENT PROJECT			
Acquire laboratory furniture and the necessary equipment, for a well-found lab for the SOCIB new building.			
TYPE OF INVESTMENT			
Type 3: Other investments			
RELATED OBJECTIVES AND STRATEGIES			
<b>Objective 6.</b> To improve and strengthen the functioning and organizational structure of ICTS SOCIB			
<b>Strategy 6.4.</b> Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands so- ciety			
FACILITY OR SERVICE CONCERNED			
SOCIB New Building			
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST		FORESEEN START DATE
N	1.500.000,00		01/05/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS		LOCATION OF THE INVESTMENT PROJECT
12	Medium		Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT			
Enable SOCIB laboratory activities to continue with little interruption to service.			

### 3. INVESTMENTS RELATED WITH LOW PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_New_Building_04		NEW BUILDING: scientific equipment
DESCRIPTION OF THE INVESTMENT PROJECT		
Acquire the necessary scientific equipment for the SOCIB new building.		
TYPE OF INVESTMENT		
Type 3: Other investments		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 6.</b> To improve and strengthen the functioning and organizational structure of ICTS SOCIB</p> <p><b>Strategy 6.4.</b> Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society.</p>		
FACILITY OR SERVICE CONCERNED		
SOCIB New Building		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	2.000.000,00	01/05/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
12	Low	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Enable SOCIB scientific activities, involving major scientific equipment, to continue with little interruption to service.		

## 3. INVESTMENTS RELATED WITH LOW PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_New_Building_05		NEW BUILDING: Science on a sphere
DESCRIPTION OF THE INVESTMENT PROJECT		
Science on a Sphere is a global display system that uses computer equipment and video projectors to display animated data on a sphere nearly two meters in diameter. Developed by NOAA researchers, this sphere is an educational tool to help illustrate scientific work and to explain the planet's natural processes to all audiences.		
TYPE OF INVESTMENT		
Type 3: Other investments		
RELATED OBJECTIVES AND STRATEGIES		
<b>Objective 1.</b> To improve and strengthen the functioning and organizational structure of ICTS SOCIB		
<b>Strategy 6.4.</b> Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society.		
FACILITY OR SERVICE CONCERNED		
SOCIB New Building		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	750.000,00	01/05/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
8	Low	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
Disseminate the activities of SOCIB. The activities of the interpretation center will be programmed for the general public, paying special attention to school groups.		

## 3. INVESTMENTS RELATED WITH LOW PRIORITY OF INVESTMENT

INVESTMENT PROJECT CODE		INVESTMENT PROJECT NAME
ICTS_SOCIB_New_Building_06		NEW BUILDING: Optical fiber Connection
DESCRIPTION OF THE INVESTMENT PROJECT		
<p>It is proposed to implement a double dark fibre-optic connection between the new building and the Point of Presence (PoP) of RedIRIS-NOVA in Les Illes Balears autonomous region, currently located at the University of Les Illes Balears (Computation Centre, CTI).</p> <p>The project would require the installation of a double diverse routing dark fiber-optic link between the new building and the PoP at CTI. Besides, the new building should have the necessary telematic infrastructure to allow initially the connectivity to the PoP at 100Gbps.</p>		
TYPE OF INVESTMENT		
Type 3: Other investments		
RELATED OBJECTIVES AND STRATEGIES		
<p><b>Objective 6.</b> To improve and strengthen the functioning and organizational structure of ICTS SOCIB</p> <p><b>Strategy 6.4.</b> Break-ground the new ICTS SOCIB headquarters: open up to Balearic Islands society</p>		
FACILITY OR SERVICE CONCERNED		
SOCIB New Building		
OUTSTANDING FACILITY? (Y/N)	ESTIMATED COST	FORESEEN START DATE
N	1.500.000,00	01/05/2023
EXPECTED DURATION IN MONTHS	GENERAL PRIORITIZATION WITHIN ICTS	LOCATION OF THE INVESTMENT PROJECT
12	Low	Balearic Islands
BENEFITS OF THE INVESTMENT PROJECT		
<p>The connectivity of new SOCIB headquarters to the national fiber optic infrastructure would allow SOCIB's specific resources and IT infrastructures to be connected to the rest of ICTS entities, ensuring compliance with the high capacity requirements of such a leading research centre. It will guarantee better scientific and technological communications, according to adequate quality standards. It will also facilitate full access to external technologies and scientific resources.</p>		



# 9

## **ANNEX II. DESCRIPTIVE REPORT**



# 9.1.

## GENERAL DESCRIPTION

### Executive Summary

SOCIB is a marine Research Infrastructure, a multi-platform multidisciplinary and integrated ocean observing & forecasting system that is leading a new era of ocean observation, a key grand challenge our society is facing under the present climate emergency. Indeed, the ocean is an integral component of the Earth's climate system. It covers about 70% of the Earth's surface and acts as its primary reservoir of heat and carbon, absorbing over 90% of the surplus heat and about 30% of the carbon dioxide associated with human activities<sup>2</sup>. Sustained ocean observations are therefore vital to establish the ocean state and variability, to understand the ocean's role in climate variability facilitating climate prediction and scenario development and contributing to testing and improving climate models. Ocean observations and modelling are also essential to preserve ocean's health and to respond to real time society needs at regional and local scale, to assure the sustainability of natural resources and the preservation and science-based management of the marine and coastal environment.

SOCIB was included in the Spanish Large-Scale Unique Infrastructures Map (ICTS) in 2014 and is now a well-established international multi-platform observing and forecasting Research Infrastructure. In the 2017-2020 period, SOCIB has focused its activities along 5 axes: (1) RI: observing and forecasting coastal ocean research infrastructure, providing open and competitive access. (2) Data: free, open and quality controlled FAIR data. (3) Science: contributing to scientific excellence, focus on coastal ocean variability at different interacting scales, from events to climate and from local to basin scale. (4) Advice: mission-oriented innovation, responding to society needs, developing tools and applications for decision support. (5) RRI: Responsible Research and Innovation, outreach and communication through enhanced society engagement, science with and for society.

ICTS SOCIB and similar infrastructures worldwide, because of their scientific excellence, critical mass, multidisciplinary, integrated and targeted approach, open data policy and sustained funding, are establishing new research ecosystems that facilitate mission-oriented innovation. More specifically, SOCIB contributes to state-of-the-art science, implements new technologies, responds to society needs and challenges and develops new products. Quantitative scientific, data access, and/or societal indicators are provided in detail in the different sections of this report. Among the most salient topics of scientific excellence with impact on society in the 2017-2020 period we can cite; the relevance of meso & submesoscale eddies in the vertical exchanges between the upper ocean and the interior, the sustainability of Bluefin tuna fisheries and its relation to the ocean variability, the incorporation of animal borne instruments, the preservation of shorelines under climate change, the development of tools to enhance safety in beaches and maritime safety, and the study of the physical carrying capacity of recreational boating in the islands.

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<sup>2</sup> The National Academies of Sciences, Engineering, and Medicine. 2017. Sustaining Ocean Observations to Understand Future Changes in Earth's Climate. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24919>.



Through all this, and with well-focused outreach and science-society engagement, ICTS SOCIB team contributes to bridge the science-policy gap. The new building in Palma harbour in the frame of the Pol Marí initiative and the incorporation of CSIC to the ICTS SOCIB Consortium, are good examples of the advances also on the structural and governance areas in the last 4 years that contribute to consolidate and extend this strong alliance contributing to reach high level goals & grand challenges: scientific excellence with impact and relevance to and for society. SOCIB is establishing new ways of national and international partnership that are leading to major science breakthroughs (e.g., Calypso), innovations in ocean observation (e.g., AniBOOS, BOON) and new ways of more efficient and science based coastal and ocean management (e.g., with SASEMAR and the Balearic Government) to guarantee healthy oceans for a sustainable planet of our future generations. SOCIB is therefore fully aligned with SDG's and the recent UN initiative declaring the oceans as the new frontier and 2021-2030 the Decade of Ocean Science for Sustainable Development to mobilize the scientific community, policy-makers, business and civil society around a programme of joint research and technological innovation.

## What is SOCIB RI in 2021

ICTS SOCIB is a marine Research Infrastructure, a multi-platform ocean observing system that is leading a new era of ocean observation, for a key grand challenge our society is facing today. Formally, SOCIB is a public consortium of legal entity with, since December 2020<sup>3</sup>, 3 major partners, the Spanish Ministry of Science and Innovation and the Balearic Islands Government, who each provide a 50% share of both investments and annual running costs, and the Spanish Research Council (CSIC). CSIC through IMEDEA (CSIC-UIB), provides since its origin a significant in-kind contribution to ICTS SOCIB, both in terms of personnel, laboratories, warehouses and office facilities at the IMEDEA building in Esporles. CSIC through UTM also strongly contributes and collaborates with ICTS SOCIB in particular in relation to the oceanographic fleet and the management of oceanic data.

ICTS SOCIB responds to 3 drivers: scientific excellence, technological development, and strategic societal priorities related to the role of the oceans and the coasts in a global climate change context, by this contributing to bridge the science-policy gap. ICTS SOCIB is a facility of facilities that has evolved, and continues to evolve, to promote **the paradigm shift** that has occurred in ocean observation and data availability: from the historical, single platform ship-based observation, with delayed mode data availability, to the current multi-platform, integrated and multidisciplinary observing systems that supply real time or quasi real time and quality-controlled data and state of the art ocean forecasting.

ICTS SOCIB evolves continuously and has focused in the last 2017-2020 period its activities along five major axes of activities:

- > **SOCIB RI:** an observing and forecasting coastal ocean research infrastructure, a facility of facilities providing open and competitive access.
- > **ICTS SOCIB & Data:** free, open and quality controlled data to FAIR principles.
- > **ICTS SOCIB & Science:** contributing to scientific excellence, focusing on coastal ocean variability at different interacting scales, from events to climate and from local to basin scale.
- > **ICTS SOCIB & Advice:** mission-oriented innovation, responding directly to society needs, developing tools and applications for decision support.
- > **ICTS SOCIB & RRI:** Responsible Research and Innovation, outreach and communication through enhanced society engagement, science with and for society.

<sup>3</sup> Resolución de 15 de diciembre de 2020, BOE de 4 de enero de 2021, Sec. III, p.742-759

ICTS SOCIB provides **competitive access** to its RI in line with the requests of the CAIS and has actually enhanced its competitive access activities, in particular in the frame of EU TA and ESFRI initiatives. SOCIB also supports open access to all its data in line with international recommendations and in particular with Euro-Argo ERIC -European Research Infrastructure Consortium- principles, which ICTS SOCIB joined in 2017. In doing so, ICTS SOCIB supports operational oceanography and contributes to establishing and understanding the services that the coastal ocean provides, yielding both ecological, societal and economic benefits. In line with EuroGOOS, operational oceanography is here understood in a wide sense, including both the systematic long-term measurements of the seas and their interpretation and dissemination and also the sustained supply of multidisciplinary data and ocean forecasting capabilities to cover the needs of a wide range of scientific research and societal priorities. This will allow a quantitative increase in our understanding of key questions on oceans and climate change, coastal ocean processes, ecosystem variability and ocean health, sea level rise and coastal impacts, etc. and will also drive us towards a more science based coastal and ocean management in line with UN Sustainable Development Goals, SDG #13 and #14 and the 2021-2030 UN Decade of Ocean Science for Sustainable Development.

## Highlights of the SOCIB RI in 2017-2020

In this section we present some of the most relevant highlights from 2017-2020 activities carried out by ICTS SOCIB, presenting firstly in the next section (1.3.1) the integrated vision of SOCIB RI and secondly (1.3.2) some more detailed highlights for a selection of Facilities and Services. For extended details, and all the references provided in the SOCIB description, the reader is referred in [ICTS SOCIB Team Research Record](#) and (Doc3), SOCIB KPIs, that provide details on scientific production, technological and societal activities.

### SOCIB RI: integrated ocean observation for science and society

ICTS SOCIB operates a **complex network of integrated observing platforms and forecasting infrastructures** for long-term monitoring of physical and some biogeochemical processes in the western Mediterranean, and also for well-focused intensive process studies (Tintoré et al., 2013; 2019). The network includes satellite-tracked surface and profiling drifters (through an annual deployment of 3 Argo floats<sup>4</sup> and 8 SVP drifters), 16 autonomous fixed coastal stations deployed around the Balearic Islands, 2 met-ocean moorings located in the Ibiza channel and the bay of Palma, a 24 m coastal research vessel, 2 high-frequency radar stations overlooking the Ibiza Channel, a fleet of 7 autonomous underwater gliders and 2 beach monitoring stations.

More specifically, ICTS SOCIB runs a **glider endurance line** in the Ibiza Channel (a well-established biodiversity hotspot) to monitor the north-south exchanges and their relation to the variability of the circulation of different water masses and the associated ecosystem variability. Two other glider lines are also executed upon request and capacity, from Mallorca to Sardinia (in collaboration with ISMAR-CNR) and from Mallorca to Algeria (mostly associated with JERICO TA access). Complementary to this quasi-real time network, high-resolution beach bathymetries and sediment sample surveys, and multidisciplinary seasonal oceanographic surveys in the Ibiza and Mallorca Channels are performed periodically, providing long-term observations that allow quantification of the variability, changes and trends in beach morphology, water mass transformation, mass and heat transport and content, eddy structures and variability, etc.

SOCIB RI capacities contribute to the following **high-level scientific objectives**<sup>5</sup>:

<sup>4</sup> Contribution to EuroArgo ERIC

<sup>5</sup> Aligned with GOOS (ICSU, IOC, WMO, UNEP) Themes.

- > Ocean and coastal variability, in relation to climate change, human pressures and global changes;
- > Marine and coastal ecosystem variability, ocean health and resilience, and adaptation to climate change;
- > Coastal Ocean in real time, operational oceanography, predictability and services for science-based management.

Focusing on these scientific objectives, and with a “**scientific excellence with impact on society**” approach, ICTS SOCIB is opening a new era of integrated ocean observation; Science with and for society. ICTS SOCIB is now a Research Infrastructure whose scientific publications, data, and tools contribute towards an essential goal of mankind: achieving healthy and sustainable oceans.

ICTS SOCIB activity is developed by a **dynamic team of approximately 48 people** including international leading scientists, engineers, technicians, support staff, data experts, postdocs and students. As a Research Infrastructure, ICTS SOCIB scientists combine operational, scientific and training activities. Associated scientists from IMEDEA (CSIC-UIB) also have a key role leading and/or providing support to different ICTS SOCIB Facilities. From 2017 to 2020, SOCIB team has published 83 papers in peer-reviewed international journals in areas such as: beach & nearshore studies; meso and sub-mesoscale ocean variability; ocean forecasting; new observing systems; bio-physical coupling and tools for decision support and data management. ICTS SOCIB has participated as a partner in 20 international projects, including FP7 and H2020 projects such as JERICO-NEXT, Copernicus Marine INSTAC, EMODnet MedSea-Checkpoint, Copernicus Marine IBISAR, EuroSea, JERICO-S3 and JERICO-DS, among others.

As a result of SOCIB RI capacities just presented, coupled with IMEDEA (CSIC-UIB) scientific achievements, and given the ideal conditions of the Alboran & Balearic Seas in the Western Mediterranean, the **international programme CALYPSO**<sup>6</sup> funded by US ONR was established in 2018 (and has recently been extended until 12/2023 with a total funding close to 30 million Euros) to respond to a major worldwide state of the art problem and provide an understanding and predictive capability of the three-dimensional coherent pathways by which water, carrying tracers and drifting objects, is transported from the surface ocean to depths below the mixed layer.

In the 2017-2020 period the ICTS SOCIB team has also carried out **innovations in new observing systems** that will be progressively implemented and later offered to the scientific community. Along this line, animal-borne instruments are a new addition to ICTS SOCIB and since 2017, tracked sea turtles -in a fruitful and sustained collaboration with NGO Alnitak and now SavetheMed- complement the observing system with unique and cost-effective data providing information on essential biodiversity variables and contributing to knowledge based marine conservation. The incorporation of **animal-borne sensors to sea turtles** has enabled the development of a sustained database of >20 sea turtle tracks equipped with oceanographic sensors and has also contributed to identifying the main gaps of current ocean observing systems and assessing the potential of animal-borne sensors to contribute towards an integrated system (March et al. 2020). Linking such information with environmental data offers new exciting possibilities to determine dynamic areas of ecological importance to support conservation management. Similarly, a pilot **Saildrone mission** was carried out in March 2020 from Alboran Sea to northeast of Menorca, including a detailed survey of Cabrera National Park in the frame of the AT2MED mission.

**Monitoring ocean noise and ship-based activities** is also of particular interest for ICTS SOCIB, from the point of view of assessing human pressures on marine ecosystems to addressing safety issues in the deployment of ocean gliders. As such, ICTS SOCIB has developed a real-time operational system to monitor ship-based activities in the Western Mediterranean using the automated identification

<sup>6</sup> <https://calypsodri.whoi.edu>

system (AIS). Such infrastructure has been proven useful to assess the changes driven by the COVID-19 pandemic during 2020 (March et al. 2021<sup>7</sup>). Future activities will be directed in using AIS data for ecological research (e.g. boat anchoring), incorporating the temporal dimensions in integrated approaches such as cumulative human impact mapping and advances towards the maturation of dynamic ocean management.

Finally, it is important to mention that all **ICTS SOCIB data** are made available in near real time for scientists and society under the terms of an open access policy. The data, scientific production, outreach and engagement activities, as well as tools and products developed are a clear performance indicator of ICTS SOCIB achievements and innovations in the new era of ocean observation. The alignment of these elements is possible due to a dedicated data lifecycle management that is fully committed with the Findable, Accessible, Interoperable and Reusable (FAIR) data principles and that also contributes to the IOC Ocean Best Practices System.

## SOCIB RI Facilities and Services

In this section, we provide a synthetic overview of some of the most significant activities carried out by a selection of Facilities and Services from ICTS SOCIB.

The **Modelling and Forecasting Facility**, in the 2017-2020 period, has successfully developed and implemented three prediction systems which are now run and evaluated on an operational daily basis. These are: the **operational regional circulation** model WMOP which is nested into the Copernicus Mediterranean model (Juza et al., 2016, Mourre et al., 2018), the **meteo-tsunami forecasting** system for Ciutadella harbour (Renault et al. 2011, Ličer et al. 2017, Mourre et al. 2020) and the **wave forecasting** around the Balearic Islands accessed through the ICTS SOCIB App. Research is also conducted to continuously improve and extend the capacity of these systems.

The **most significant recent advances** include the evaluation of the potential of ensemble forecasting for the prediction of meteotsunamis (Mourre et al. 2020), the analysis of the impact of hydrodynamic model downscaling in the Western Mediterranean Sea (Aguar et al. 2020), the integration of multi-platform observations and high-resolution modelling through data assimilation (Pascual et al., 2017, Hernandez and Mourre, 2018) and a number of Lagrangian applications aimed at understanding the dispersion of fish and, *Pinna Nobilis* larvae (Calò et al. 2018, Kersting et al. 2020, Torrado et al., 2021), *Pinna Nobilis* parasite (Cabanellas-Reboredo et al. 2019), and marine litter (Ruiz-Orejón et al. 2019, Compa et al. 2020). The model was also analyzed for Search-and-Rescue applications (Reyes et al. 2020, Révelard et al. 2021) and was incorporated into the SASEMAR operational decision-support system. Over recent years the model has been and is used to support intense observational campaigns (ALBOREX Pascual et al. 2017, PRESWOT Barcelo-Llull et al. 2018, CALYPSO Mahadevan et al. 2020), providing both high-resolution real-time predictions and delayed-time reanalysis, as well as in a very high resolution nesting capacity. The high-resolution simulations were subsequently used to analyze fine scale processes and associated vertical velocity variability (Garcia-Jove et al. 2021).

The models have also provided useful inputs to water mass characterization studies (Juza et al. 2019, Margirier et al. 2020), and were used to simulate high-resolution observations for altimeter Observing Simulation Experiments (Gomez-Navarro et al., 2018, Fablet et al., 2018). Further, they also enabled an evaluation of the impact on the coastal dynamics of an extreme Ebro river discharge (Ruiz-Parrado et al. 2020).

Significant advances have been also achieved in the understanding and simulation of physical-bio-geochemical processes, particularly on the combined effects of the Atlantic Water inflow at Gibraltar

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<sup>7</sup> March D, Metcalfe K, Tintoré J, Godley BJ. (2021) Tracking the global reduction of marine traffic during the COVID-19 pandemic. Nature Communications (In press).

and the associated eastward jet and winds over the phytoplankton distribution in the Alboran Sea (Oguz et al., 2016, Oguz et al., 2017).

All these results have direct implications in terms of operational response to emergencies, sustainable management of the marine environment and ecosystem health, and climate.

The **Lagrangian Platforms Facility** has maintained and extended its high-level international partnerships. More specifically, in 2017 ICTS SOCIB became a formal partner of **Euro-Argo ERIC**, the EU consortium that coordinates the contribution to the international Argo programme and by which ICTS SOCIB is committed to deploy 3 Argo profilers per year. Also, since 2019, ICTS SOCIB is an active partner in the **Euro-Argo RISE** (Euro-Argo Research Infrastructure Sustainability and Enhancement), whose objective is to enhance and extend the capabilities of the Argo network to provide essential ocean observations to answer new societal and scientific challenges. ICTS SOCIB is also a partner of the **Global Drifter Program** (GDP), a branch of NOAA's Global Ocean Observing System and a scientific project of the Data Buoy Cooperation Panel. As part of this programme, the ICTS SOCIB commitment is to deploy 8 surface drifters per year. Since 2019, ICTS SOCIB has been and is part of the NOAA Barometer Upgrade programme, whose objective is to improve the collaboration between oceanographers and meteorologists by encouraging the addition of barometer sensors to standard drifters.

The **HF Radar Facility** in the 2017-2020 period has been active maintaining the infrastructure and extending the international scientific collaborations and uses of the infrastructure by scientists and stakeholders aligned with the major challenges of HFR Global Network for **data production and application**<sup>8</sup>. Along this line, the ICTS SOCIB team has contributed, in **collaboration with national, international and intersectoral partners, to boost the HFR data usage** in operational systems for **model assessment** (see Mourre et al., 2018 and Aguiar et al., 2020) **and improvement** through data assimilation to foster the progress in the **research of small-scale coastal dynamics and their interaction** with atmospheric and open-ocean processes. Specifically, this progress provides us with the potential to: i) monitor the seasonal intensification of the Iberian Poleward Current -IPC- in the Southeastern Bay of Biscay (Rubio et al., 2019), where the strongest currents are observed in periods of intense N-NW winds, particularly during winter time; ii) study the **seasonal variability of the particle residence time** inside the HFR-Euskoss and HFR-Ibiza coverages (Rubio et al., 2020), showing a significant spatial and temporal variability directly linked to the main circulation variability and influenced by other drivers; iii) investigate the response of **sub-mesoscale structures in an extreme wind event** in the Ligurian Sea (Berta et al., 2020) finding local values of divergence of the order of the local Coriolis parameter, indicating significant submesoscale vertical velocity; iv) observe the **Ebro river freshwater discharge** event registered over the last 15 years showing the impact of the freshwater-pulse on the surface circulation pattern and the relevance of including the observed river runoff in the models (Ruiz et al., 2020); v) develop the **science-based downstream data service IBISAR**, which provides user-friendly model skill assessment by integrating HF radars, surface drifters and model data, thus facilitating decision-making during the emergency response at sea (Reyes et al., 2020).

Additionally, aligned with the ICTS SOCIB commitment with the promotion of OBPs, HFR has collaborated in the review of practical considerations for **operation and maintenance for the major HFR systems** (Mantovani et al., 2020). Following the roadmap of the EuroGOOS HFR Task Team in **advanced products development**, Hernández-Carrasco et al., 2018 analysed the **reliability of the available HFR gap-filling methods** for the Lagrangian assessment of the coastal ocean dynamics. Considering the importance of the **Strait of Gibraltar** in the NW Mediterranean Sea circulation, Dastis et al., 2018 analysed the **inverse correlation** between the **atmospheric pressure** fluctuations over the Ligurian sea and the **sub-inertial Atlantic Inflow** variability. Moreover, Chioua et al., 2017, found that the **interaction of this Atlantic Inflow** with the coastal-**counter-current** developed along the

8 [1] Roarthy et al., (2019)

northern coast and the NW area of Alboran Sea during strong easterly events, is able to **develop a cyclonic vortex** in the eastern mouth of the Strait. This **strongly baroclinic oceanographic regime** that characterized the **Strait of Gibraltar and the Algeciras Bay** demands a fully 3D approach to properly simulate the **behaviour or surface pollutant spills** in the area, as highlighted by González et al., 2019.

A special mention to the ICTS SOCIB-SASEMAR trust relation established in the 2017-2020 period is needed, and follows previous similar types of very special scientific, societal and personal trust-based relations established before with Puertos del Estado or IMEDEA (CSIC-UIB), among others. The IBISAR CMEMS funded project led by ICTS SOCIB and the General Collaboration Protocol have been key elements in building this trust relation and also resulted in a better knowledge and discovery of the ICTS SOCIB data sources. A clear outcome of this collaboration is the average of 1.802 file downloads of the ICTS SOCIB ocean model by SASEMAR in 2020. In the forthcoming years, SASEMAR and ICTS SOCIB intend to make a leap forward to the operational level, integrating ICTS SOCIB's ocean model into the SASEMAR operational service also strengthening the collaboration with the Maritime Rescue Coordination Centres.

With respect to the research activities developed in the frame of the **bluefin tuna project** conducted together with IEO, it is important to note that they have had a key impact on the sustainability of marine living resources and are well aligned with ICTS SOCIB goal of improving the science-based fisheries management. In 2017 the abundance indices providing estimates of the bluefin tuna population status in the Balearic Sea, calculated on the basis of oceanographic monitoring of bluefin tuna habitats by ICTS SOCIB and IEO, were accepted by the scientific groups of the ICCAT as the unique scientific indices independent of fisheries data (ICCAT 2017, Ingram et al 2017). Since then, this index has been a main input for the **innovative scientific assessment approach** that is being implemented by the Commission. ICTS SOCIB, in collaboration with IEO, provided also the unique habitat standardized index informing about the population of the Mediterranean albacore, a species that needs careful monitoring due to the uncertain status of the population (Alvarez-Berastegui 2018,). The project also focused on developing capabilities to investigate the ecological and oceanographic factors driving the survival of bluefin tuna during the early life stages, combining biological experiments and operational monitoring of sea temperatures. The results have allowed the development of the first numerical model for the bluefin tuna larval survival, relating the effects of regional heat waves, associated to climate change, on the bluefin tuna recruitment (Reglero et al. 2019). The initiative for incorporating the environmental variability in the process of fisheries assessment has been well received by the ICCAT, and a specific section has been included in the "ICCAT Ecosystem Report Card" for that purpose, containing indicators of sea state from ICTS SOCIB (Alvarez-Berastegui et al.).

In relation to the **Jellyfish programme** established with the Balearic Government since 2014 (since 2017 without any funding for ICTS SOCIB), we have continued the systematic, periodic and routine monitoring established together with different DG's from the government and have reached a database of more than 170.275 records. It is a very relevant initiative that we plan to reinforce as much as possible in the new SP 2021-2024.

The **Beach Monitoring Facility** in the 2017-2020 period has maintained its provision of long-term datasets of near-shore processes directly related to interdisciplinary studies. In terms of near-shore morphodynamics, Morales et al., (2018) studied the morphodynamical response of a microtidal beach (Cala Millor) under a single and storm clusters by means of numerical modelling, in situ measurements and video imaging. In Gómez-Pujol et al. (2019) an in depth description of Balearic Islands beaches was presented, followed by a review of the dissipative to reflective beach state continuum theory presented by Gomez-Pujol and Orfila (2020). In relation to the use of remote sensing methods, Simarro et al. (2017) developed the open-source ULISES code for video-images rectification and planview generation. This technique is the basis of the regular and systematic shoreline extraction at the Beach Monitoring and its long-term dataset of shoreline position, that has contributed on the study of evolution and vulnerability of natural beach-dune systems (Son Bou in Menorca) under cli-



mate change and sea-level rise scenarios (Enríquez et al. 2017, Enríquez et al., 2019). Moreover, it has provided the framework for cross-correlation and validation of satellite-images shoreline extraction methods (Sánchez-García et al., 2020).

## Facilities and Services provided in 2017-2020

In this section we provide an overview of the Facilities and Services in the 2017-2020 period. It is important to note that at SOCIB, as an integrated system, all Facilities and Services contribute to the common goal of RI in such a way that they reinforce and consolidate the global, integrated and multi-disciplinary nature of SOCIB RI. In other words, the integrated result is certainly of higher relevance than the results of each one of the parts. We also specifically address the suggestions from the CAIS Evaluation Report in relation to the Outstanding Facilities.

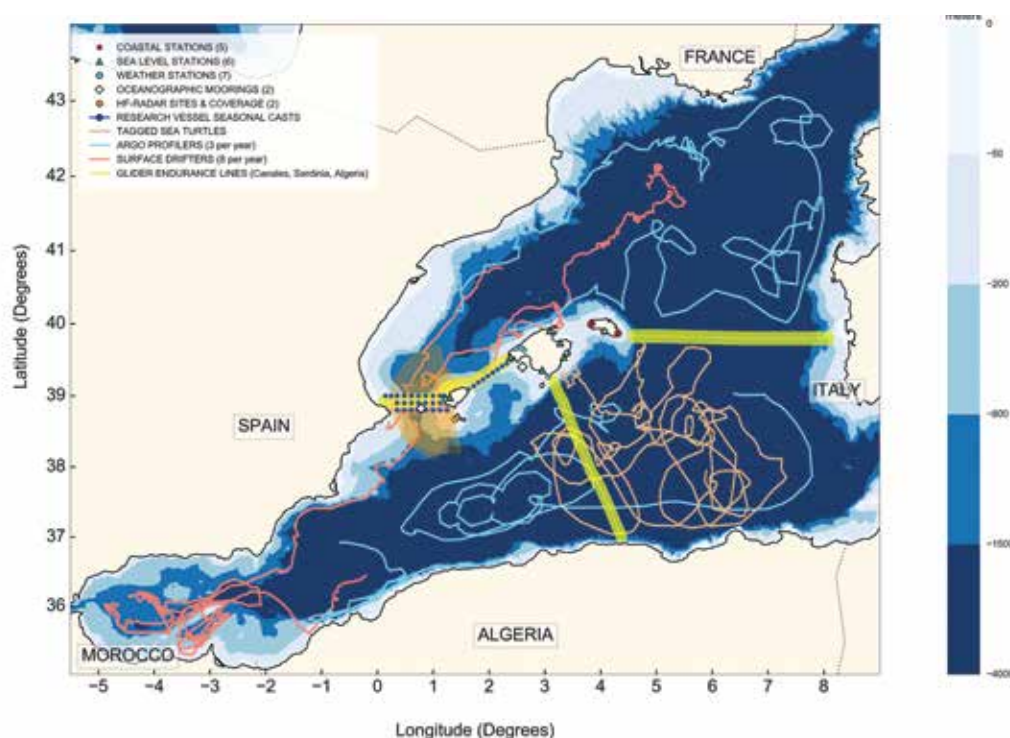


Figure 1: The components of ICTS SOCIB Multiplatform Observing Infrastructures (from Tintoré et al., 2019).

## SOCIB Outstanding Facilities

**SOCIB Outstanding Facilities** provide integrated multidisciplinary observing, modelling and data capacities from the coast to the open ocean. They are (as later explained in response to CAIS 2018 suggestions) on one side the SOCIB Glider Facility for Competitive Access and the SOCIB Research Infrastructure System -SOCIB RI System-<sup>9</sup>. We briefly present next the SOCIB outstanding facilities.

**The SOCIB Glider Facility for Competitive Access** is a leading European Capacity for ocean gliders and a flagship facility for both ICTS SOCIB and Spain. The ICTS SOCIB Glider fleet consists in 2021 of 7 gliders. As a leading monitoring resource in a Mediterranean context, the Glider Facility offers a

<sup>9</sup> The R/V SOCIB Competitive Access is an Outstanding Facility in ICTS FLOTA



national, European and international capability. The facility supports competitive access to the platforms for focused process studies, thus enabling outside scientific groups to access these platforms for oceanographic research. As a result, external scientific users apply on a competitive access basis for glider operations through ICTS SOCIB's own competitive access [application procedure](#).

The **SOCIB RI System is composed** of the following Facilities:

- > Fixed Stations Facility
- > Lagrangian Platforms Facility
- > HF Radar Facility
- > R/V SOCIB Facility Endurance cruises
- > Glider Facility Endurance lines
- > Beach Monitoring Facility
- > Modelling and Forecasting Facility
- > Data Center Facility

The **Fixed Stations Facility** operates up to 18 autonomous measurement platforms deployed around the Balearic Islands and connected to the ICTS SOCIB's central servers to have real-time and long-term knowledge of different oceanographic and meteorological parameters. The facility therefore provides a continuous time series of essential water and weather variables that can be incorporated into a broad range of applications for science and society. The different platforms can be classified in four groups:

- > Sea level stations
- > Ocean-meteorological buoys
- > Weather stations
- > Coastal stations

The **Lagrangian Facility** manages the deployment strategy for Argo floats and surface drifters, which form a significant part of the Spanish contribution to the international Argo network and the Global Drifter Program respectively. ICTS SOCIB is a signed up member of Euro-Argo ERIC. Through an annual deployment of 3 Argo floats and 8 drifters, ICTS SOCIB directly contributes over the long term to maintaining a consistent spatial coverage in the north western Mediterranean, intended to meet the needs of, amongst other users, global climate models. The facility has an automated QC protocol and data available through the ICTS SOCIB website and the regional Argo GDAC.

The **HF Radar Facility** operates in the Ibiza Channel and provides hourly surface current maps. The facility provides detailed real time 24/7 surface current velocity data with a spatial resolution of approximately 3 km and a range reaching up to 40 nautical miles offshore. The high resolution of these data allows characterisation of the surface expression of meso- and submeso- scale current structures in the Ibiza Channel. The data are fully exploited by the Modelling Facility and available for other regional and international uses and users, for example safety at sea support through SASEMAR.

The **R/V SOCIB Facility Endurance cruises** operates the SOCIB R/V, a fast 24 m catamaran, equipped for modern, multi-disciplinary ocean science, and capable of sustained operations of up to 5-7 days at sea that has been operational since 2013. A detailed description, including technical details, equipment, crew, berths, endurance etc. can be found in the [SOCIB catamaran brochure](#).

The **Beach Monitoring Facility** is a technology leader in the monitoring of the short to long-term evolution of beach morphology. Its system of beach installations, supported by the Engineering and Technical Division, and associated field campaigns is unique and delivers data streams to meet science needs at a cost level that is sustainable, and is being adopted by the Spanish Coastal Research Community and institutes internationally as a reference system. These Beach Monitoring Facility services include hourly beach images for selected beaches, real time weather station data, continuous Acoustic Wave and Current profiling (AWAC) datasets (collected biannually) and periodic beach and sediment surveys. These services form ICTS SOCIB's Modular Beach Integral Monitoring System (MOBIMS), as part of which, coastal video monitoring allows the autonomous and sustained collection, analysis and storage of high-resolution digital pictures, that are then used to observe and quantify a wide range of coastal phenomena.

The **Modelling and Forecasting Facility** has three different maritime forecasts in response to societal needs: a high-resolution ocean current forecasting system (WMOP), providing 3.5 day ocean forecasts for the Balearic Islands, Alboran Sea and adjacent sub-basins including temperature salinity and ocean currents on a daily basis; a meteo-tsunamis forecasting system (BRIFS) developed in collaboration with AEMET, providing a 48 hour meteo-tsunami forecast for the Ciutadella harbour (Menorca, Spain) on a daily basis to provide additional decision support elements to responsible authorities; and a 72-hour high-resolution forecast service (SAPO) for the Balearic Islands developed in collaboration with Puertos del Estado, providing 72 hour wave forecasts twice a day on three computational and separate grids (Mallorca, Menorca and Pitiusas). These forecasting systems are continually improved and tested through specific process studies (in most cases in relation to ICTS SOCIB team participation in EU and National scientific projects), thus contributing to both enhancing our scientific understanding and our modelling skills and capabilities. These forecasts are free Open Access, thereby aligning the competitive access one stage further towards the principles of EuroARGO, EuroGOOS and now EOOS.

The **Data Centre Facility** takes streams of data from the Observing and Modelling Facilities, applies automatic data specific and internationally established quality controls, then archives and streams the data for display through ICTS SOCIB and other web portals. It is the data hub of the ICTS SOCIB structure. The archived data is made available to scientists over the long term for search and discovery in a Thredds Catalogue system and this data access capability has expanded to encompass advanced data combination and user specific applications. The combination of different sources and types of information (time series, profiles, trajectories, grids/meshes, images, acoustic data, etc.) requires appropriate methods to ingest, catalogue, display and distribute this information. The Data Centre works towards providing users with a system to locate and download the data of interest and to visualize and manage the information. The Facility offers free Open Access to all ICTS SOCIB oceanographic and metocean data both in real and near-real time, and delayed mode. For scientists the data are openly available through the ICTS SOCIB THREDDS server structure, this includes data from gliders, Argo, moorings, beach monitoring, R/V SOCIB, drifters, HF Radar, etc. Open access to all ICTS SOCIB model forecasts is also available through the same THREDDS server structure. Open Access for non-scientific users is made possible through tools developed by the Data Centre Facility to bridge the science society gap. These tools include iOS and Android Apps for visualization of real-time data from ocean observing platforms and model forecasts; and web browser visualization tools through links on the ICTS SOCIB homepage.

## SOCIB RI Services

In this section we briefly present some examples of how SOCIB Services are giving rise to significant innovations addressed to different sectors of society. Indeed, the ocean affects us all, influencing weather and climate, impacting many sectors such as agriculture, marine and coastal activities,

marine ecosystems, tourism, living conditions, human health and disaster preparedness, both regional and globally<sup>10</sup>. Sustained ocean observations are needed and vital to support the **Blue Economy** which is predicted by the OECD to more than double its contribution to the global value-added economy, reaching over \$3 trillion by 2030. The Blue Economy is a marine-based economic development that aims to improve human well-being, while significantly reducing environmental risks and ecological scarcities<sup>11</sup>.

ICTS SOCIB and similar infrastructures worldwide, because of their scientific excellence, critical mass, multidisciplinary, **integrated** and targeted approach, open data policy, and sustained funding, are establishing new research ecosystems that facilitate **mission-oriented innovation**<sup>12</sup>. More specifically, ICTS SOCIB contributes to state of the art science, implements new technologies, responds to society needs and challenges, develops new products, and through all this, and with well-focused outreach and science-society engagement, ICTS SOCIB team contributes to bridge the science-policy gap.

ICTS SOCIB is establishing new ways of **international partnership** to reach high level goals and grand challenges that are leading to major science breakthroughs, innovations in ocean observation and new ways of more efficient and science based coastal and ocean management to guarantee healthy oceans for a sustainable planet of our future generations. ICTS SOCIB is therefore fully aligned with SDG's and the recent UN initiative, declaring the oceans as the new frontier and 2021-2030 the **Decade of Ocean Science for Sustainable Development** to mobilize the scientific community, policy-makers, business and civil society around a programme of joint research and technological innovation.

The know-how, data, operational forecasting capabilities, tools for decision support and products developed until now are a clear **performance indicator of ICTS SOCIB achievements and innovations** in a new era of ocean observation. In terms of **innovation and responding to stakeholder's needs**, ICTS SOCIB developed (Heslop et al., 2019) a sector-focused products and services strategy that allowed identification of 10 key user sectors (groups of users with common data interests and needs) which are important to the region (economically/societal benefit) and already receive data of value from ICTS SOCIB (e.g., value to decision-making). The implementation of this strategy is now underway and by the end of 2021 the ICTS SOCIB website will include a new searchable product catalogue, with detailed information on existing products, and new sector-focused products (e.g., for lifeguards on beaches and for the sustainability of bluefin tuna). Regional ocean observatories have a key role to play in delivering societal benefits from ocean data and research, and the ICTS SOCIB efforts concentrate on the coastal component of a future European Ocean Observing System (EOOS).

The **sectors and related end users** (in brackets) that are now core to ICTS SOCIB products strategy are:

- > Marine and coastal research (academia, government policymakers and responsible, NGOs)
- > Maritime safety (SAR operators, coastguard, oil spill response managers, maritime emergency managers, navy & national security agency)
- > Marine sports (recreational sailing, sports sailing/regattas, surfing, diving)
- > Beach and coastal communities (citizens, tourists)
- > Coastal protection, coastal risks, planning and governance (government environmental managers, lifeguards, beach and coastal planners, energy company managers)

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10 JCOMM Observing System Report Card 2018

11 "The Blue Economy is a knowledge-based economy looking to the sea, not really for extraction of natural goods but for data to address societal challenges and inspire solutions", Richard Spinrad, Chief Scientist, NOAA, EOS, August 1, 2016.

12 M. Mazzucato, 2018: Mission-Oriented Research & Innovation in the European Union. A problem-solving approach to fuel innovation-led growth. European Commission. ISBN 978-92-79-79832-0. doi:10.2777/360325.

- > Ports and Shipping (port managers, port pilots, ferry companies/captains, shipping companies/captains, cruise companies/captains)
- > Integrated coastal zone and ocean management (ICOM managers, MPA managers, marine managers, water quality operators)
- > Sustainable marine ecosystems (fisheries managers, fisheries scientists, commercial fishermen, recreational fishermen, sustainability managers)
- > Sustainability of islands and climatic change (government policy, sustainability managers)
- > Education and kids (school kids/teachers, higher education kids/ teachers, society)

As an extension to its scientific and societal research and operational activities, ICTS SOCIB also undertakes significant **outreach work**. The ICTS SOCIB Outreach & Communication Service has evolved in the 2017-2020 period and is at present named Corporate Strategy, Communication and Ocean Literacy, to emphasize the strategic relevance of society engagement in ICTS SOCIB activities. The Service promotes ocean literacy and raises awareness on the impact of new ocean observing systems on the advancement of knowledge, science-based management and the preservation of marine and coastal resources. The aim is to bring ocean data and ocean science concepts to all citizens and classrooms. Since 2017, ICTS SOCIB has participated in 53 events (science fairs, workshops, national contests, etc.) with 293.957 participants, has produced more than 30 training resources and educational material and online games and apps for kids and teachers (mostly online at [www.socib.es](http://www.socib.es) and more specifically at the portal Medclíc, "*The Mediterranean at one clic*", [www.medclíc.es](http://www.medclíc.es)), appearing 870 times in media.

In summary, the **ICTS SOCIB added value** to regional, national and global science can be summarized as follows:

- > Deliver integrated multi-platform ocean observing and forecasting, from coastal to open sea and from events to climate;
- > Contribute to understand ocean variability and interactions at a wide variety scales;
- > Provide free, quality controlled and open data, FAIR and Competitive Open Access;
- > Assure the highest level of scientific excellence;
- > Train a new generation of researchers and technicians;
- > Public sector leadership with measurable impact on society and sound PPPs;
- > Develop mission oriented innovation; from basic research to products and services;
- > Work with policy makers responding to specific society needs;
- > Engage with society, ocean literacy and outreach: science with and for society, aligned with RRI initiatives;
- > Establish partnerships to reach high level goals, building trust.

## 9.2.

## EVALUATION OF ICTS SOCIB'S COMPLIANCE WITH THE ICTS REQUIREMENTS AND CRITERIA

### Essential Facilities and Services considering CAIS Evaluation Report 11/2018

In this section, we present the major elements of the CAIS Evaluation Report from 11/2018 and describe the actions carried out at ICTS SOCIB to address them. There are no major or significant changes on the **Essential Facilities and Services**, just minor re-structuring along a well-established international state of the art.

#### More specifically, the CAIS report indicated:

*"3. The catalog of essential facilities should be simplified by grouping those used to capture the observational data that is then offered to the users through the data facilities. The resulting set would constitute an 'outstanding facility' that could be named, for example, OBSERVING DATA SYSTEM.*

#### List of 'Outstanding Facilities' for the ICTS SOCIB

OBSERVING DATA SYSTEM (provisional name), including:

- > Data Center Facility
- > Fixed Stations Facility
- > Lagrangian Platforms Facility
- > HF Radar Facility
- > R/V SOCIB
- > (Glider Facility, for non-competitive observational use)
- > SOCIB Modelling and Forecasting Facility
- > SOCIB Glider Facility
- > SOCIB Beach Monitoring Facility"

We thank very much the CAIS referees for their suggestion and have followed it in general terms. Indeed, given the present international trend to integrate models and observations, and to extend open ocean observations to the coast/nearshore to better respond to society needs, we believe that a **SOCIB RI (Research Infrastructure) System** would adequately respond to the CAIS recommendation, while at the same time assuring that the benefits from integrated observations and models, and also of integrating coastal and nearshore data. Accordingly, we have established and would like to propose to maintain as such for 2021-2024:

**SOCIB Outstanding Facilities:** provide integrated multidisciplinary observing, modelling and data capacities from the coast to the open ocean.

**a) SOCIB RI System** – new name we propose “for OBSERVING DATA SYSTEM (suggested by CAIS see above)”: and composed of

- > *Fixed Stations Facility*
- > *Lagrangian Platforms Facility*
- > *HF Radar Facility*
- > *R/V SOCIB Facility Endurance cruises*
- > *Glider Facility Endurance lines*
- > *Beach Monitoring Facility*
- > *Modelling and Forecasting Facility*
- > *Data Center Facility*

and,

**b) The SOCIB Glider Facility competitive access**

*“4. For the assessment in the ICTS framework of the aforementioned OBSERVING DATA SYSTEM, the “Beach monitoring facility “and the” Modelling & Forecasting facility” it is necessary to set up mechanisms for controlled access to data that allow knowing the use made of them in R + D + i projects and activities”.*

We acknowledge the CAIS referees for their suggestion and have significantly advanced, establishing access metrics for access to data, fully in line with international RI open data initiatives.

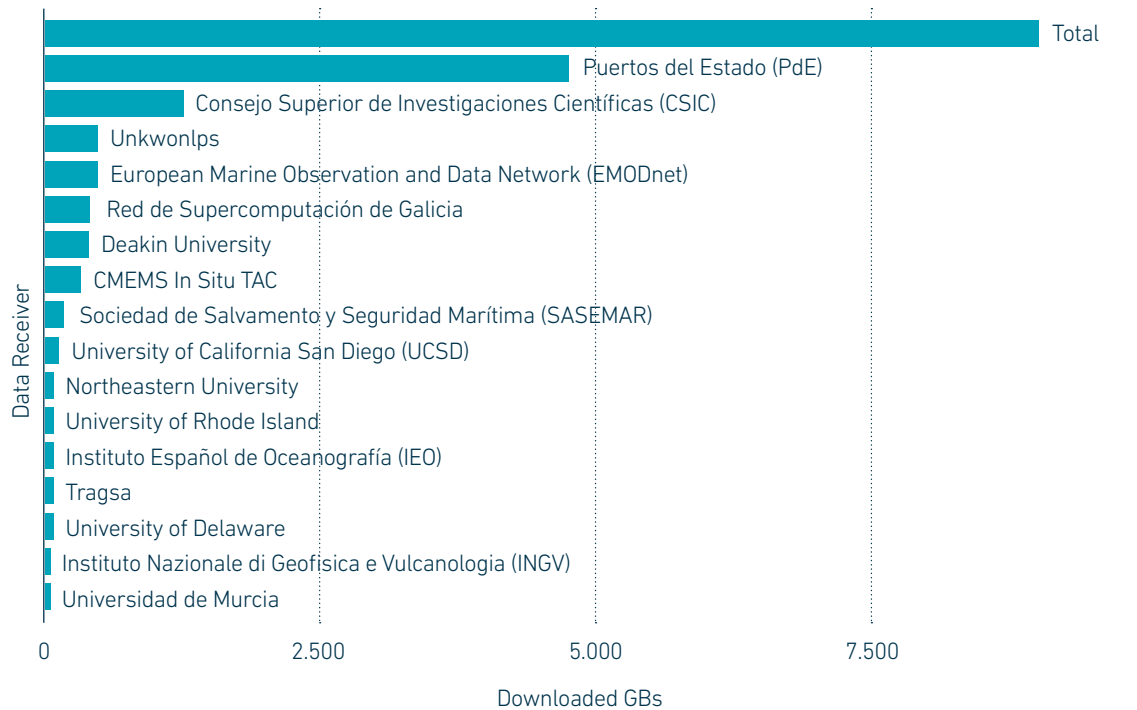
Accordingly, we have developed and implemented access metrics using 2 different tools: ICTS SOCIB Access Metrics System for machine to machine (M2M) accesses -aligned also with the EU JERICO-RI Virtual Access metrics which we are responsible- and standard Google Analytics for human users' accesses (i.e., web browsers such as presently showing the Beach Monitoring Cameras). More specifically, ICTS SOCIB Access Metrics System allows:

- > Harvesting access information from ICTS SOCIB Data Server (Thredds Data Server: <https://thredds.socib.es>) from 2017 to 2020 and for all SOCIB RI System.
- > Collecting access information to Beach Monitoring Facility data (ie. SIRENA camera monitoring system) since 2020. A high density of requests (1.000.000 downloads) has been detected and further developments are planned for the next Strategic Plan (2021-2024) to allow recognition of users.

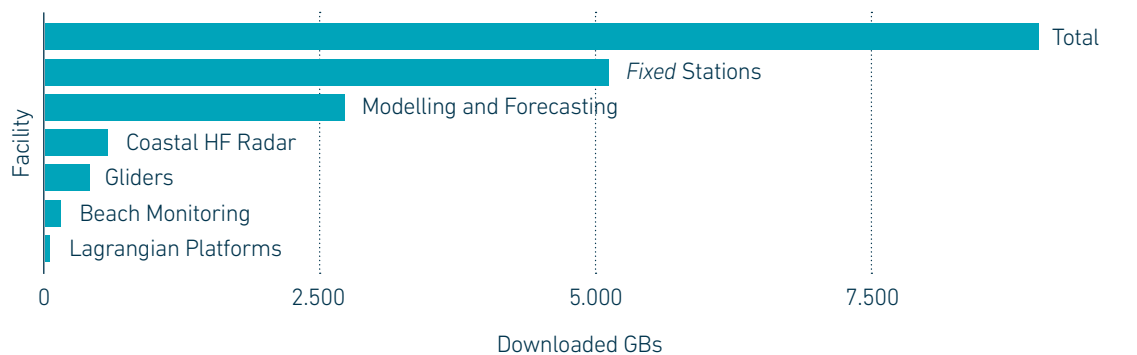
The new ICTS SOCIB Data API (<http://api.socib.es/home>) implemented in 2019 includes a user registration form that will be integrated in the ICTS SOCIB metrics system in 2021.

As a result, we can now track the access to the SOCIB RI System in particular accessing to the ICTS SOCIB Thredds Data Server, resulting in an average of 190 Gb of data downloads per month during the period 2017-2020. The ICTS SOCIB Access Metrics System also allows identification of main users and targeted facilities as shown below:

## DOWNLOADED GBS BY ORGANIZATION



## DOWNLOADED GBS BY FACILITY





With respect to accesses to the main ICTS SOCIB websites through web browsers, the table below shows a summary from Google Analytics:

Web	SOCIB Web	SOCIB Applications	MEDCLIC	La Mar de Ciencia	Follow the Glider	SOCIB Seaboards	IBISAR (Mar 2019-Dec 2020)
# Sessions	144.291	34.493	48.607	102.425	7.042	18.866	1.467
# Users	64.160	14.956	35.772	74.974	5.504	2.601	762
% Session by repeating users	55%	56%	26%	27%	21%	86%	48%
Average Time on Page	1m 25s	13m 01s	2m 04s	2m 38s	1m 44s	3m 41s	3m 56s
% Bounce Rate	53%	63%	72%	71%	57%	79%	73%

Further developments are presently being carried out to improve the achievements and specifically concerning user access information; specifically, the release of the new ICTS SOCIB corporate website (expected for the second semester of 2021-delayed due to COVID-19) will include a user login that will improve the exploitation of the user access metrics with a broader scope, including user engagement, qualitative assessment of access metrics by sectors, etc. In addition to the above-mentioned actions, a demonstration of our recognition in this is the leadership of the e-JERICO initiative and the Virtual Access WP under the EU programme JERICO-S3, for which SOCIB was considered the natural lead EU organization (3rd major partner with total funding up to 710.000 Euros, 2020-2023 and a sustained initiative since 2010 with total EU funding since then above 1,5 million Euros).

## Assessment of ICTS SOCIB fulfilment of criteria on competitive access & CAIS Evaluation Report 11/2018

In this section we first present the conclusions and considerations from the CAIS Evaluation Report related to the fulfilment of the criteria on the competitive access calls and briefly explain how we have addressed them.

*"The SOCIB infrastructure **adequately meets the criteria required to the ICTS's** regarding: investment and operating costs criteria, uniqueness and strategic character, openness to the competitive access of the research community, production and performance, objectives, ST committee, management, staff, financing, public ownership, open composition, and future open competitive access offer.*

*As for the **strategic plan**, submitted in the second phase of the evaluation process, **the assessment is positive**. The investment plan associated to it includes a number of actions that have been assessed in the context of the SOCIB infrastructure and the whole ICTS Map".*

We thank very much the CAIS referees for their comments and positive considerations.

*"In summary, the result of the evaluation of SOCIB as a standalone ICTS **is positive**. Nevertheless, **the following considerations should be taken into account** during the 2017-2020 period:*

*1. Competitive access to the SOCIB RV is managed through the ICTS 'Flota oceanográfica española'; therefore the ICTS SOCIB should only contemplate other modalities of access to this platform, as well as its use for the purposes of marine observation of the ICTS SOCIB".*

We fully understand and share this comment and have been working actively with the ICTS FLOTA

in terms of organization, management, accounting and coordinated actions of the R/V SOCIB. Under ICTS FLOTA, the national access requests for the R/V SOCIB have been made, but generally other FLOTA vessels have been allocated by COCSABO. However, we see promising expectations for 2021 in light of the new IEO-CSIC reorganization that can facilitate the competitive access to the R/V SOCIB by researchers.

With respect to the other modalities of access, the R/V SOCIB ETD Team has concentrated in the 2017-2020 period in (a) maintaining a permanent crew (Captain and 1s Officer - which is usually a prerequisite for access to the private sector-) and (b) assuring excellent maintenance of all onboard and scientific equipment. As a result, commercial access to the R/V SOCIB has significantly improved. In this period the R/V SOCIB has operated on the sea a total of 373 days. Of those, 73 days (i.e. almost 20%) have been ICTS SOCIB internal campaigns, and 300 days (i.e. 80%) have been both access on demand by private or public companies and competitive access.

*"2. It is necessary to adopt strategies to boost the supply and demand of open competitive access to the gliders and other facilities of SOCIB, which in the previous period has been very limited".*

We have actually adopted the strategies suggested and have partially succeeded as described below. It must be however recognized that the Glider Facility has since its start in 2010 only 2 full time technicians, and it is very difficult to boost supply and demand of open competitive 24/7 operations with such a scarce number of technicians. More specifically, we have made significant efforts to encourage applications for glider access, both through an improved call timetable, promoting it through web, news and social media, and assuming a bigger role in the EU modality of Transnational Access (TA) of EU Research infrastructures initiatives such as JERICO-NEXT, and now JERICO-S3 and JERICO-DS. As a result, the Open Access has seen an increase during the 2017-2020 period when the ICTS SOCIB's Glider fleet has operated at sea a total of 1.301 days. Of those, 894 days (i.e. 68,7%) have been ICTS SOCIB internal campaigns, and 407 days (i.e. 31,3%) have been through competitive access.

For the next 2021-2024 Strategic Plan we plan specific actions with the AEI and the Manager of the Marine Sciences Programme to enhance the requests of gliders in national projects proposals, and we hope this will be associated with a reinforcement of 1 more permanent engineer at the Glider Facility/ETD.

*"Also, in the Doc2, Final result of the evaluation, there were 2 additional considerations regarding competitive access:*

*iv. Competitive open access offered over 2013-2016: acceptable/ improve required"*

As explained above, we have made different actions to enhance and improve competitive open access and we have seen positive outcomes: indeed the Open Access has seen an increase during the 2017-2020 period compared with the previous period, with the average percentage time of gliders days use by external user through competitive access reaching a 31,3% of the total days of gliders use.

*"And vii. Use demand: acceptable/ improve required"*

Again, as previously explained, the access by the private sector to the R/V SOCIB has been encouraged, and as a result has significantly improved during the 2017-2020 period. In this period the R/V SOCIB has operated more than 80% of its time via access on demand by private or public companies and competitive access. Under ICTS FLOTA, the national access requests for the R/V SOCIB have been made, but generally other FLOTA vessels have been allocated, and we have seen no explanations for these decisions. This is a very important point to improve for the next Strategic Plan.

## ICTS SOCIB's ongoing and planned actions in response to the ISSC Assessment Report from 12/2020

In this section, and as a complement to the response to the CAIS Evaluation Report, we briefly present the specific suggestions from the International Scientific Steering Committee (ISSC) Assessment Report from 12/2020 (Doc2) and for each one of them, present the actions already ongoing and or planned to adequately respond to them. Since the meeting took place very recently, on 10-11 December 2020, in some cases actions are foreseen for the next months.

The following recommendations are directly derived from the ISSC's SWOT analysis:

1. Re-evaluate main constitutive documents and ideas when moving to the new building. The move will mark a sharp milestone in the development of SOCIB and it will be a perfect time to revisit and update the vision and mission of the organization.

**OK. We have actually planned specific actions along this line that can be traced in objective 6, strategies 6.4.**

2. Improve connection with potential clients (an advisory board of constituents?). A good example can be found with NOAA Fisheries in the MAFAC

**OK. Ongoing. A new SIAS structure is being analyzed, trying to improve the connections with potential clients.**

3. Improve internal structure, increasing and defining properly the role of mid-level to intermediate senior positions, and doing it to increase the alignment with the vision and mission, making special focus in the distinctive concept of integration in operational oceanography.

**OK. Planned for 2021. Already initiated with the new Corporate Strategy, Communication and Ocean Literacy Service. See for example Objective 6, Strategies 6.1. Note that the Strategic Plan has been carried out following a participatory approach with active involvement of SOCIB personnel from all Facilities and Services.**

4. Maintain both activities, science and operations/services, being aware of the difficulty of doing so and creating compensation mechanisms to avoid stress in the key personnel, trying to promote stability.

**OK. We will try as much as possible, but on many occasions, this is well beyond our attributions and capabilities at ICTS SOCIB.**

5. Consider engaging in Big Data and AI activities

**OK. Indeed, we share the interest and relevance. Also implies specific new funding for personnel.**

6. Evaluate the possibility of integrating senior CSIC researchers

**OK. Again, totally aligned with our interests.**

7. Do not be too project oriented, participating mainly on projects aligned on SOCIB 10 years goal/roadmap

**OK. Indeed, this is what we try to do: only accept projects well aligned with ICTS SOCIB strategies and objectives.**

8. Be sure to have a balance of operational /scientific personnel on high levels

**OK. Fully agree and we try, but it is very difficult to have both at the same time.**

9. Evaluate if downstream activities are fully exploited – linked to the need of clients (again, explore the need of advisory board of constituents) to ensure sustainability).

**OK. Along this line, we have requested an external analysis of ICTS SOCIB downstream activities to INGENIO experts, starting in February 2021.**

10. Promote special collaboration agreement with other institutions, such as PLOCAN, that could derive in win-win situations

**OK. Along this line, we are already preparing a joint agreement with PLOCAN and UCadiz to share students and technicians.**

11. Performance of the observing system must be carefully addressed, creating KPI that allow assessment on its real performance over time

**OK, included in the 2021-2024 Strategic Plan.**

## 9.3.

**DECLARATIONS AND COMMITMENTS**

ICTS SOCIB is a marine Research Infrastructure, a multi-platform multidisciplinary and integrated ocean observing & forecasting system that is leading a new era of ocean observation, a key grand challenge our society is facing under the present climate emergency. In this section we present the frame for the declarations and commitments requested by the CAIS.

Indeed, the ocean is an integral component of the Earth's climate system. It covers about 70% of the Earth's surface and acts as its primary reservoir of heat and carbon, absorbing over 90% of the surplus heat and about 30% of the carbon dioxide associated with human activities<sup>13</sup>. Sustained ocean observations are therefore vital to establish the **ocean state and variability**, to understand the ocean's role in **climate variability** facilitating climate prediction and scenario development and contributing to testing and improving climate models. Ocean observations and modelling are also essential to preserve **ocean's health** and to respond to **real time society needs** at regional and local scale, to assure the sustainability of natural resources and the preservation and **science-based management** of the marine and coastal environment.

ICTS SOCIB was included in the Spanish **Large-Scale Infrastructures Map in 2014** and is now a well-established international multi-platform observing and forecasting Research Infrastructure. In the 2017-2020 period, ICTS SOCIB has focused its activities along 5 axes: (1) **RI**: observing and forecasting coastal ocean research infrastructure, providing open and competitive access. (2) **Data**: free, open and quality controlled FAIR data. (3) **Science**: contributing to scientific excellence, focus on coastal ocean variability at different interacting scales, from events to climate and from local to basin scale. (4) **Advice**: mission-oriented innovation, responding to society needs, developing tools and applications for decision support. (5) **RRI**: Responsible Research and Innovation, outreach and communication through enhanced society engagement, science with and for society.

ICTS SOCIB and similar infrastructures worldwide, because of their scientific excellence, critical mass, multidisciplinary, **integrated** and targeted approach, open data policy and sustained funding, are establishing new research ecosystems that facilitate **mission-oriented innovation**. More specifically, ICTS SOCIB contributes to state-of-the-art science, implements new technologies, responds to society needs and challenges and develops new products. Quantitative scientific, data access, and/or societal indicators are provided in detail in the different sections of this report. Among the most salient topics of scientific excellence with impact on society in the 2017-2020 period we can cite; the relevance of meso & submesoscale eddies in the vertical exchanges between the upper ocean and the interior, the sustainability of Bluefin tuna fisheries and its relation to the ocean variability, the incorporation of animal borne instruments, the preservation of shorelines under climate change, the development of tools to enhance safety in beaches and maritime safety, and the study of the physical carrying capacity of recreational boating in the islands.

Through all this, and with well-focused outreach and science-society engagement, ICTS SOCIB team contributes to bridge the science-policy gap. The **new building** in Palma harbour in the frame of the **Pol Marí initiative** and the incorporation of CSIC to the ICTS SOCIB Consortium<sup>14</sup>, are good examples of the advances also on the structural and governance areas in the last 4 years that contribute to

<sup>13</sup> The National Academies of Sciences, Engineering, and Medicine. 2017. *Sustaining Ocean Observations to Understand Future Changes in Earth's Climate*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24919>.

<sup>14</sup> Resolución de 15 de diciembre de 2020, BOE de 4 de enero de 2021, Sec. III, p.742-759

consolidate and extend this strong alliance contributing to reach high level goals & grand challenges: scientific excellence with impact and relevance to and for society. ICTS SOCIB is establishing new ways of **national and international partnership** that are leading to major science breakthroughs (e.g., Calypso), innovations in ocean observation (e.g., AniBOOS, BOON) and new ways of more efficient and science based coastal and ocean management (e.g., with SASEMAR and the Balearic Government) to guarantee healthy oceans for a sustainable planet of our future generations. ICTS SOCIB is therefore fully aligned with SDG's and the recent UN initiative declaring the oceans as the new frontier and 2021-2030 the **Decade of Ocean Science for Sustainable Development** to mobilize the scientific community, policy-makers, business and civil society around a programme of joint research and technological innovation.

The Commitments below follow the CAIS regulations and also follow the international framework revised above. More specifically,

- > **Commitment 1:** In relation to **SOCIB RI System** (formerly Observing Data System), the commitment is: (1) to provide access metrics for all the different observing, forecasting and data facilities that already allows and will allow an even better tracking of users and sectors. More specifically: Fixed Stations Facility, Lagrangian Platforms Facility, HF Radar Facility, R/V SOCIB Facility Endurance cruises, Glider Facility Endurance lines, Beach Monitoring Facility, Modelling and Forecasting Facility, Data Center Facility.
- > **Commitment 2:** In relation to **SOCIB RI System** (formerly Observing Data System), the commitment is (2) to sustain and provide access to long time series of Essential Ocean Variables that will allow scientists and society to adequately study and understand the ocean's role in climate variability facilitating climate prediction and scenario development and contributing to testing and improving climate models, preserving ocean's health and responding to society needs at regional and local scale, to assure the sustainability of natural resources and the preservation and science-based management of the marine and coastal environment.
- > **Commitment 3:** In relation to ICTS **SOCIB Glider Facility Competitive Access**, the commitment is to maintain and if possible expand the requests and use of the competitive access to SOCIB Glider fleet, in any case above the 20% requested by CAIS.
- > **Commitment 4:** In relation to **R/V SOCIB**, it is formally included in the ICTS FLOTA in relation to the Competitive Access. However, the R/V SOCIB is a key element of the multi-platform observing system. As such, the commitment from ICTS SOCIB is to maintain and if possible expand the use of the R/V SOCIB by the public and private sector in response to societal needs.
- > **Commitment 5:** In relation to **Communication, Ocean literacy and Society engagement**, the commitment is to support and extend responsible research and innovation (RRI) actions, driving and supporting dedicated efforts towards citizen participation, encouraging society engagement and promoting Ocean Literacy as described in the 3 strategies directed at this commitment.

## 9.4.

## DOC 1. CAIS EVALUATION REPORT, 11/2018

FIRMADO por : JOSE IGNACIO DONCEL MORALES. A fecha : 19/11/2018 17:15:58  
El documento consta de un total de 2 folios. Folio 1 de 2 - Código Seguro de Verificación: 950277-65278923. Verificable en <https://serviciosde.minico.gob.es/csv/> según Orden Ministerial del 24/2/2011



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POLÍTICA CIENTÍFICA

SUBDIRECCIÓN GENERAL DE GRANDES INSTALACIONES  
CIENTÍFICO-TÉCNICAS

## OFICIO

S/REF.:

N/REF.: MAPAICTS-2017-014/SOCIB

FECHA: 19 de noviembre de 2018

ASUNTO: APROBACIÓN DEL MAPA DE ICTS Y TRASLADO DEL RESULTADO DE LA  
EVALUACIÓN

DESTINATARIO: Sr. D. Joaquín Tintoré Subirana, Director del Consorcio Sistema de  
Observación Costero de las Illes Balears (SOCIB)

Por la presente comunicación le informo de la conclusión del proceso de actualización general del "Mapa de Infraestructuras Científicas y Técnicas Singulares (ICTS) 2017-2020", mediante la aprobación por el Consejo de Política Científica, Tecnológica y de Innovación (CPCTI), en su reunión del 6 de noviembre de 2018, de la nueva configuración del Mapa de ICTS para dicho periodo, que mantendrá su vigencia hasta la siguiente actualización del mismo.

El Mapa aprobado y la documentación de referencia<sup>1</sup> se encuentran publicados en la página web del Ministerio de Ciencia, Innovación y Universidades, en el siguiente enlace:

<http://www.ciencia.gob.es/portal/site/MICINN/ICTS/MAPA>

La infraestructura "Sistema de Observación Costero de las Illes Balears (SOCIB)" ha quedado integrada en dicho Mapa como ICTS de localización única.

Se hace notar que la instalación "Buque de Investigación Oceanográfico (BIO)" de SOCIB no queda integrada en esta ICTS sino en la ICTS "Flota oceanográfica española".

El acuerdo del CPCTI establece que las ICTS de localización única podrán evolucionar hacia ICTS distribuidas si se demuestra que existen otras infraestructuras que pueden aportar valor significativamente al conjunto, previa evaluación de las mismas.

Se adjunta a esta comunicación el informe de evaluación del Comité Asesor de Infraestructuras Singulares. El Anexo A del mismo contiene la relación de "instalaciones esenciales" de la ICTS a juicio del comité evaluador. El Anexo B contiene las calificaciones alcanzadas y el resultado de la evaluación. El Anexo C recoge la lista de inversiones prioritarias que constituyen la nueva referencia de actuaciones elegibles para su cofinanciación dentro del Programa Operativo FEDER Plurirregional de España y, cuando así

<sup>1</sup> ANEXO I - CONFIGURACIÓN MAPA ICTS 2017-2020

ANEXO II - DOCUMENTO DE TRABAJO DE LA CEPCTI: ACTUALIZACIÓN Y SEGUIMIENTO DEL MAPA DE  
INFRAESTRUCTURAS CIENTÍFICAS Y TÉCNICAS SINGULARES

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## OFICIO

lo dispongan, de los programas regionales que en su caso establezcan las comunidades autónomas.

El resultado de esta evaluación no tiene efectos económicos ni supone compromiso alguno de financiación. No obstante, las entidades titulares de la(s) infraestructura(s) objeto de las inversiones relacionadas en dicho informe, con las salvedades aplicables a las nuevas infraestructuras incorporadas al Mapa y a aquellas con Plan de Acción en vigor, podrán acceder a la línea de financiación FEDER del Programa Operativo Plurirregional de España 2014-2020 "Infraestructuras Científicas y Técnicas Singulares (ICTS)". Para ello deben dirigirse a la página web del Ministerio de Ciencia, Innovación y Universidades (MNCIU), donde encontrarán toda la información necesaria para formalizar las solicitudes.

El proceso de selección de operaciones y eventual financiación de las mismas se somete a la normativa y reglamentación del programa FEDER referido, que incluye la evaluación individual de cada actividad a financiar y, en su caso, a la eventual suscripción del convenio de financiación correspondiente sujeto a disponibilidad FEDER y presupuestaria de MNCIU.

La pertenencia al Mapa impone obligaciones a las ICTS en términos de apertura al acceso competitivo de toda la comunidad investigadora, pública y privada, para la realización de proyectos de I+D+i; y de rendición de cuentas al Ministerio de Ciencia, Innovación y Universidades y al CPCTI. En consecuencia, el MNCIU realizará un seguimiento de los accesos, indicadores y resultados de las ICTS, para lo cual la ICTS deberá proporcionar periódicamente la información que se le requiera.

Adicionalmente, le solicito que a partir de este momento remitan a esta Subdirección General la información relativa a las convocatorias de acceso a su ICTS (resolución de concesión con el listado de accesos solicitados y concedidos) a medida que éstas se vayan resolviendo y se hagan públicas en su página web.

Para cualquier consulta o aclaración pueden dirigirse a la dirección [planestrategico.icts@mineco.es](mailto:planestrategico.icts@mineco.es) o a los teléfonos 91 603 8334 – 7443.

Fdo. José Ignacio Doncel Morales

Secretario del Comité Asesor de Infraestructuras Singulares

ANEXO: Informe de evaluación del Comité Asesor de Infraestructuras Singulares

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## EVALUATION REPORT

## Model A

REF: MAPAICTS-2017-014/SOCIB

Infrastructure:	Sistema de Observación Costero de las Illes Balears
Typology:	Single-sited
Status:	Operating
Type of Report:	ICTS Map update – Final report

## I. SCOPE

The scope of this report is to evaluate the compliance with the ICTS criteria and requirements by the infrastructure referred to in the header, which has been carried out during phase 1 of the evaluation process, and the assessment of the Strategic Plan of the infrastructure that has taken place during Phase 2 of such process. The institutional declarations and commitments assumed for the next four-year period, in case of incorporation to the ICTS Map, are also examined.

## II. REPORT

## A. QUANTITATIVE CRITERIA

## A.1. Investment

Being an observational infrastructure, where the quality of the environment prevails over other aspects, the ICTS 'SOCIB' is not enforced by the quantitative criterion related to minimum investment in technological assets. Notwithstanding this, the technological assets associated to the distributed ICTS SOCIB are close to the 10 million € level required to be qualified as ICTS.

## B. QUALITATIVE CRITERIA

## B.1. Uniqueness and strategic character

SOCIB is a multi-platform ocean observing system that provides streams of data, added value products, and forecasting services from the coast to the open ocean. SOCIB supports Open Access (OA) to all its data, in line with and extending the principals of the Euro-Argo European Research Infrastructure Consortium (ERIC), which SOCIB joined in 2017. In so doing, SOCIB supports operational oceanography and contributes to establishing and understanding the services that the coastal ocean provides, yielding both ecological and economic benefits.

## B.2. Open access

The open access protocol and open national and European calls for the SOCIB fleet of gliders and the RV SOCIB, is clearly indicated in the SOCIB website (although an update is required to amend some obsolete references detected). It also provides

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information about how to access the SOCIB free services (Forecasting and Modelling, Data Center Facility, and Beach Monitoring Facility) and the policy for their use. At this time, the external user does not have to register in order to download the free data, although it is advised to contact SOCIB in advance. It is here recommended that a user registration is implemented in order to download the free data. This will allow SOCIB to better analyse the number and type of the users that access the data.

SOCIB has been accessed by numerous entities, including a large number of international institutions. Most of the access to SOCIB is to the free services of SOCIB. The access to the glider services is considered low (accessed 5 times) and mainly by SOCIB associated entities.

The percentage of open and competitive access by the infrastructure is above the 20% required for an ICTS. However, it is desirable to adopt new strategies to foster and reach a higher number of accesses to the glider services by a larger number of institutions.

The access to SOCIB services is accompanied by logistical support. In addition, external on demand access to SOCIB is available to the public or private sector.

**B.3. Production and Performance**

The list of publications provided shows an average production of 19 scientific articles each year. This is considered to be good when considering that SOCIB may not have a way implemented yet to follow up on publications produced by their free services users.

Regarding project participation, SOCIB has participated in 10 international projects over the period. These numbers are especially important in the oceanographic field where data collection need of oceanographic campaigns and where instrumental, operations and analysis are all highly time-consuming and complicate. Deserve special mention the development of tools (sometimes do not recognized as significant production) for ocean data visualization that allow to access to the data to a broad range of users. Research collaborations are somewhat focused on local institutions and a few national and international groups.

With regards to technology transfer, the ICTS SOCIB it is not easily susceptible to produce patents, even though an effort should be made to identify TT results. For instance, SOCIB have an important number of contracts but only two consultancy services have been listed in the ICTS DATA database.

**B.4. Strategic Plan**

A Strategic Plan has been submitted in the second phase of the evaluation process. The result of the assessment is summarised below.

The fulfillment of the objectives of the previous Strategic Plan is considered excellent. The objectives of the SOCIB in the Strategic Plan for 2017-2020 are clearly stated. Some improvements are aimed to expanding biogeochemical observations to contribute to the sustainability management of the ocean and coastal areas. The region of operation/study of the SOCIB services other than the RV SOCIB is mainly focused in the Balearic Islands, however, it could be of high interest for the outermost regions that are affected by oceanographic processes occurring in the Balearic zone such as Alboran Sea, Strait of Gibraltar o Morocco coasts. In this sense, collaboration with other institutions from these regions could raise additional opportunities.

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Regarding the investment plan, those strategies focused on maintaining the operational, computational and instrumentation capabilities of the infrastructure are considered adequate. Some of the investment actions proposed, such as the quota for participating in the Euro-Argo or the acquisition of not-inventory material, are not eligible as they cannot be properly considered as 'investments' but 'operating costs'. On the other hand, the investments relating to the RV SOCIB are not considered here but in the FLOTA distributed infrastructure report.

Regarding the "Red de Infraestructuras Marinas" network, which SOCIB was participating in together with PLOCAN during the previous 2013-2016 period, the Committee has observed a lack of activity and interest by both institutions and therefore recommends its exclusion from the next edition of the ICTS Map.

#### **B.5. General Objectives of the Infrastructure**

The central objective of ICTS SOCIB is to be a world class observing system providing observations, forecasts, products and services for Europe, Spain and the Balearic Islands. By forging relationships with and listening to key users, recently identified and classified in 10 sectors as discussed earlier, SOCIB has targeted and continues to target observational capacity and model building to underpin relevant and essential products and services for societal benefit. The societal benefits can be economic, safety, sustainability, and also new opportunities. In order to achieve this central objective, it is critical that SOCIB maintains and drives a world class standard in earth observation, in response to state of the art scientific priorities. To this end SOCIB has become a full member of EuroGOOS and EuroARGO ERIC and is Spain's representative at this level. In line with these and SOCIB's international counterparts, SOCIB's has specific objectives driven by international scientific priorities and state of the art technology that answer two priorities,

- Addressing and responding to international scientific, technological and strategic challenges for operational oceanography in the coastal ocean, and
- Enhancing operational oceanography research and technology activities being carried out in the Balearic Islands and western Mediterranean.

#### **B.6. Scientific & Technical Advisory Committee**

An external committee composed of 10 senior scientists of international standing in marine sciences is in place with the mandate to guide the strategic objective of the ICTS, to address operation and technological issues, and to review the proposals for access to SOCIB services.

#### **B.7. Management**

SOCIB is a consortium with its own legal entity created through a joint agreement between the regional and central government. SOCIB has three governance levels: a Board of Trustees, an Executive Commission and an External Scientific and Technical Advisory Committee. The main responsible is the director which has the function of development and administration of the SOCIB. The director periodically meets with the Board of trustees, executive commission and Scientific Advisory committee. In general, management scheme is very well organized to coordinate the different divisions



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included in the SOCIB.

**B.8. Staff**

SOCIB personnel consists of scientists, and technical and administrative support personnel. The total number of employees, as of September 2017, is 39; of these, 19 staff members have a BSc or engineering degree, 16 staff members have a PhD, and 4 staff members have a Technical engineering or Technical certificate title. This composition is deemed excellent for the purposes of SOCIB.

**B.9. Funding**

The ICTS SOCIB is mainly funded by the Spanish Ministry of Economy Industry and Innovation (MINECO) and the Government of the Balearic Islands (CAIB). All these institutions are 100% publicly-owned.

**C. STATEMENTS AND COMMITMENTS.****C.1. Public Ownership**

The SOCIB is formally a consortium with its own legal entity created through a joint agreement between the Government of the Balearic Islands (CAIB) and the Spanish Ministry of Science and Innovation (MCIINN), now changed to Ministry of Economy, Industry and Competitiveness (MINECO), and with funds approved into 2021.

**C.2. Open composition**

The infrastructure declares its willingness to collaborate, within the framework of the ICTS Map, with other infrastructures that operate in its research field and others that could be identified in the future, either by creating or expanding the Distributed ICTS for this purpose, in the benefit of the Spanish of R + D + i system.

**C.3. Future open competitive access offer**

The infrastructure offers access in an open and competitive way in a large fraction of its indicated capacity for each service. This percentage is higher than the 20% required at least for ICTS.

**III. CONCLUSIONS.**

The SOCIB infrastructure adequately meets the criteria required to the ICTS's regarding: investment and operating costs criteria, uniqueness and strategic character, openness to the competitive access of the research community, production and performance, objectives, ST committee, management, staff, financing, public ownership, open composition, and future open competitive access offer.

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As for the strategic plan, submitted in the second phase of the evaluation process, the assessment is positive. The investment plan associated to it includes a number of actions that have been assessed in the context of the SOCIB infrastructure and the whole ICTS Map.

In summary, the result of the evaluation of SOCIB as a standalone ICTS is positive. Nevertheless, the following considerations should be taken into account during the 2017-2020 period:

1. Competitive access to the SOCIB RV is managed through the ICTS 'Flota oceanográfica española', therefore the ICTS SOCIB should only contemplate other modalities of access to this platform, as well as its use for the purposes of marine observation of the ICTS SOCIB.
2. It is necessary to adopt strategies to boost the supply and demand of open competitive access to the gliders and other facilities of SOCIB, which in the previous period has been very limited.
3. The catalog of essential facilities should be simplified by grouping those used to capture the observational data that is then offered to the users through the data facilities. The resulting set would constitute an 'outstanding facility' that could be named, for example, OBSERVING DATA SYSTEM.
4. For the assessment in the ICTS framework of the aforementioned OBSERVING DATA SYSTEM, the "Beach monitoring facility "and the" Modelling & Forecasting facility" it is necessary to set up mechanisms for controlled access to data that allow knowing the use made of them in R + D + i projects and activities.

The list of facilities of the infrastructure under evaluation, which have been qualified as 'Outstanding Facilities' by this Committee, is shown in the Annex A to this report.

The ratings reached in each section are summarized in the table shown in Annex B to this report.

The list of priority investments is shown in Annex C to this report.

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ANNEX A: List of 'Outstanding Facilities' for the ICTS

SISTEMA DE OBSERVACIÓN COSTERO DE LAS ILLES BALEARS

Node / RI	Outstanding facilities
SOCIB	OBSERVING DATA SYSTEM (provisional name), including: <ul style="list-style-type: none"><li>- Data Center Facility</li><li>- Fixed Stations Facility</li><li>- Lagrangian Platforms Facility</li><li>- HF Radar Facility</li><li>- R/V SOCIB</li><li>- (Glider Facility, for non-competitive observational use)</li></ul>
SOCIB	Modelling and Forecasting Facility
SOCIB	Glider Facility
SOCIB	Beach Monitoring Facility

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## ANNEX B: Final result of the evaluation

INFRASTRUCTURE	SISTEMA DE OBSERVACIÓN COSTERO DE LAS ILLES BALEARS
REFERENCE	MAPACTS-2017-014/SOCIB
STATUS	OPERATING
TIPOLOGY	SINGLE-SITED RI (Pre-existing ICTS)
<b>A. QUANTITATIVE CRITERIA</b>	
i) Investment and operating costs	c. Not applicable (observational RI)
<b>B. QUALITATIVE CRITERIA</b>	
<b>1. ICTS Uniqueness and strategic character</b>	<b>a. Excellent</b>
i. Infrastructure/hardware configuration	a. Optimum
ii. Technology	a. Latest Generation
iii. Natural environment (when relevant)	a. Unique environment or optimal location
iv. Research services	a. World-class R&D services
v. Added value to Spanish R&D/Innovation	a. Essential
vi. Strategic character	a. EU or Globally Strategic
vii. Uniqueness	b. Unique or among the best of Europe
<b>2. Open competitive access</b>	<b>b. Good</b>
i. Open Access website	b. Good
ii. Open Access protocol / policy	b. Good
iii. Open Access committee	a. Excellent
iv. Competitive open access offered over 2013-2016	c. Acceptable / Improvement required
v. Open access calls 2013-2016	b. Good
vi. Complementary access services	a. Excellent
vii. Users demand	c. Acceptable / Improvement required
<b>3. Production and Performance</b>	<b>b. Very good</b>
i. Publications	b. Very good
ii. Projects participation	b. Very good
iii. Technology transfer	c. Good
iv. Collaborations	a. Excellent
v. Outreach activities and materials	a. Excellent
vi. Training activities	a. Excellent
<b>4. Strategic Plan 2017-2020</b>	<b>a. Excellent</b>
i. Fulfillment previous Strategic Plan	a. Excellent
ii. Objectives	a. Excellent
iii. Strategies	b. Good
iv. Resources and sustainability	b. Good
v. Future actions/investments	b. Good
<b>5. General objectives of the Infrastructure.</b>	<b>a. Excellent</b>
<b>6. Scientific &amp; Technical Advisory Committee.</b>	<b>b. Very good</b>
<b>7. Management schemes (particularly for RI and external users' support)</b>	<b>a. Excellent</b>
<b>8. Staff (particularly for RI and external users' support)</b>	<b>a. Excellent</b>
<b>9. Funding (2013-2016)</b>	<b>a. Excellent</b>
<b>C. STATEMENTS AND COMMITMENTS</b>	
<b>1. Public Ownership</b>	<b>a. Yes</b>
<b>2. Open Composition</b>	<b>a. Yes</b>
<b>3. Future open competitive access offer</b>	<b>c. Sufficient</b>
<b>Information provided by the infrastructure under evaluation</b>	
Information provided by the RI in the Description Report	a. Excellent
Information provided by the RI in the Strategic Plan	a. Excellent
Information provided by the RI in ICTSDATA	b. Good
<b>CONCLUSION</b>	
Positive evaluation as a stand-alone infrastructure	

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ANNEX C: List of priority investments

SISTEMA DE OBSERVACIÓN COSTERO DE LAS ILLES BALEARS

CODIGO	NODO	NOMBRE
ICTS_SOCIB_GF_001	N.A.	New glider vehicles
ICTS_SOCIB_LPF_001	N.A.	Updating the lagrangian fleet: Argo
ICTS_SOCIB_MFF_001	N.A.	High-Performance Computing cluster
ICTS_SOCIB_DCF_001	N.A.	SOCIB Mobile Apps Strategy
ICTS_SOCIB_SIAS_001	N.A.	Animal-borne sensors
ICTS_SOCIB_CIT_001	N.A.	New SOCIB Unified Storage System
ICTS_SOCIB_CIT_002	N.A.	New SOCIB Backup System
ICTS_SOCIB_CIT_004	N.A.	Update SOCIB General Servers
ICTS_SOCIB_CIT_007	N.A.	Software acquisition and license renewal
ICTS_SOCIB_CIT_008	N.A.	Update HF Radar IT Infrastructure



## 9.5.

**DOC 2. INTERNATIONAL SCIENTIFIC STEERING  
COMMITTEE ASSESSMENT REPORT, 12/2020****SOCIB International Scientific Steering Committee Meeting****10-11 December 2020****Assessment Report****Authors:**

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Date: January 20, 2021



## Meeting of SOCIB

### INTERNATIONAL SCIENTIFIC STEERING COMMITTEE - ISSC -

#### Summary of Analysis and Recommendations

10-11 December 2020 (*Held by video conference*)

#### Introduction

During 10-11 December 2020 the second meeting of ISSC (SOCIB INTERNATIONAL SCIENTIFIC STEERING COMMITTEE MEETING) was held by video-conference. This report contains the main findings (in the form of SWOT analysis) and recommendations from ISSC after the two days of presentations and subsequent discussion.

#### SWOT analysis

##### Strengths

- ISSC has observed good evolution of SOCIB since the last meeting. This is especially true with respect to human resources. Now SOCIB team is better suited to fulfill its institutional mission
- Since its origin, SOCIB was designed with broad goals. This opens a wider field of opportunities and actions, and provides some redundancy in case some of the lines do not unfold properly
- The presentations during this meeting clearly shows that there is sufficient talent inside the organization
- There is a strong observational component that is important and must be cared for
- Excellent scientific production and arguably established credibility as a “go-to” marine science organization in Europe.
- Young personnel. This implies enthusiasm, fresh ideas and development opportunities.

##### Weakness

- Retention of talent. It was observed during the years, and it is a challenge for SOCIB and for similar organizations. This is particularly true when referring to IT personnel.
- Broad goals, that can present challenges in keep all moving forward
- Internal institutional structure not clearly defined. This prevents it to be aligned with fulfilling the declared operational oceanography system integration objectives
- Associated with the previous bullet, missing intermediate layer of mid-level to senior positions at key positions in the structure
- Difficulties to manage operations and science at the same time
- Associated to the previous bullet, stress in the team due to wide range of works



- Missing a constituents' Advisory Board.

#### Opportunities

- Excellent perspectives for EU funding, and forging partnerships in UN Decade of Ocean Science (UNDOS) activities
- The links to RFMOs (Regional Fisheries Management Organizations) could be further explored, e.g., building on work initiated with Bluefin Tuna and other species.
- Opportunities of funding associated with societal challenges. Formalizing such relationships with constituents can also result in these same groups advocating for the importance of SOCIB's contributions.
- New building that will facilitate closer collaboration between the teams, international projection and sense of belonging
- New IEO/CSIC institutional framework

#### Threats

- Not all scientific contributions are recognised as such (data collection for example). This creates tensions in the teams. This problem is not exclusive to SOCIB.
- World changing fast with new technologies (big data) and it could be difficult to "do it all"; partnerships may offer solutions.
- Risk of being too project-oriented; it is important that the projects are aligned with the mission and vision of the organization, contributing to creating a distinctive niche for SOCIB.
- No clear (at least on the presentations) strong local/regional support. See comment above about creating an advisory body to build external support/advocacy.
- Institutional framework depending on political background. Today, in the present situation, there is a strong dependence on political decisions, volatile by definition.
- Engineers have poor recognitions as compared to scientist and may be more tempted to leave the organization

### Recommendations and ways forward

The following recommendations are directly derived from the previous SWOT assessment:

- Re-evaluate main constitutive documents and ideas when moving to the new building. The move will mark a sharp milestone in the development of SOCIB and it will be a perfect time to revisit and update the vision and mission of the organization.
- Improve connection with potential clients (an advisory board of constituents?). A good example can be found with NOAA Fisheries in the MAFAC - see: <https://www.fisheries.noaa.gov/topic/partners#marine-fisheries-advisory-committee>
- Improve internal structure, increasing and defining properly the role of mid-level to intermediate senior positions, and doing it to increase the alignment with the vision and mission, making special focus in the distinctive concept of integration in operational oceanography.
- Maintain both activities, science and operations/services, being aware of the difficulty of doing so and creating compensation mechanisms to avoid stress in the key personnel, trying to promote stability.
- Consider engaging in Big Data and AI activities
- Evaluate the possibility of integrating senior CSIC researchers



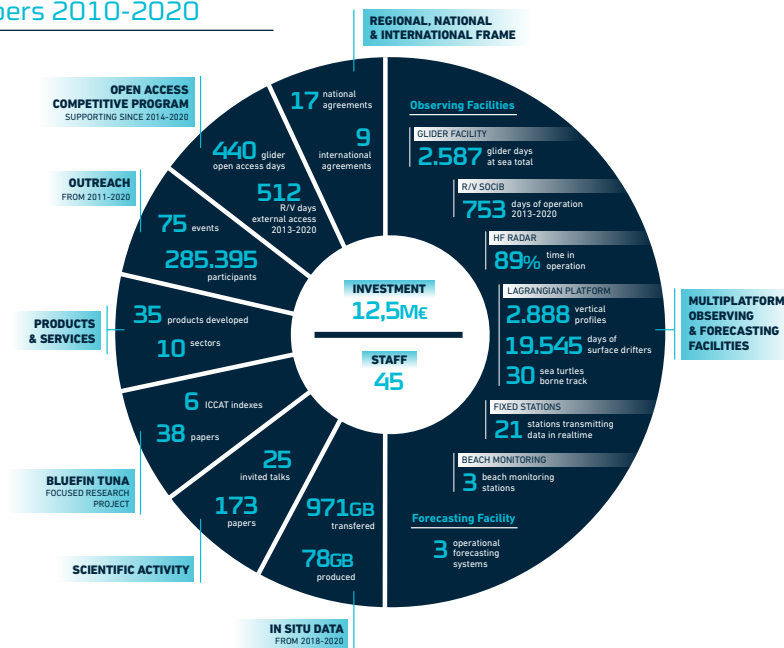
- Do not be too project oriented, participating mainly on projects aligned on SOCIB 10 years goal/roadmap
- Be sure to have a balance of operational /scientific personnel on high levels
- Evaluate if downstream activities are fully exploited – linked to the need of clients (again, explore the need of advisory board of constituents) to ensure sustainability
- Promote special collaboration agreement with other institutions, such as PLOCAN, that could derive in win-win situations
- Performance of the observing system must be carefully addressed, creating KPI that allow assessment on its real performance over time

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con un certificado emitido por Camerfirma AAPP II - 2014

## 9.6.

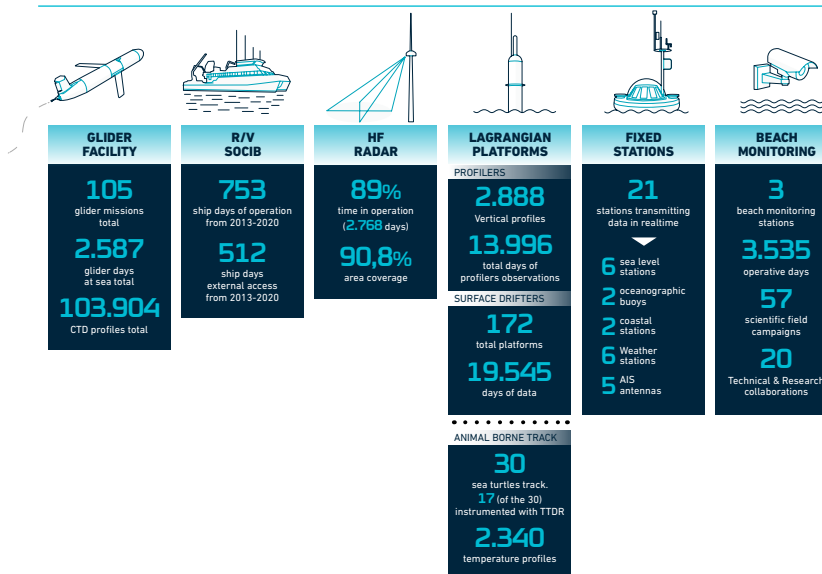
## DOC 3. ICTS SOCIB KPI'S SCHEMES

## SOCIB numbers 2010-2020



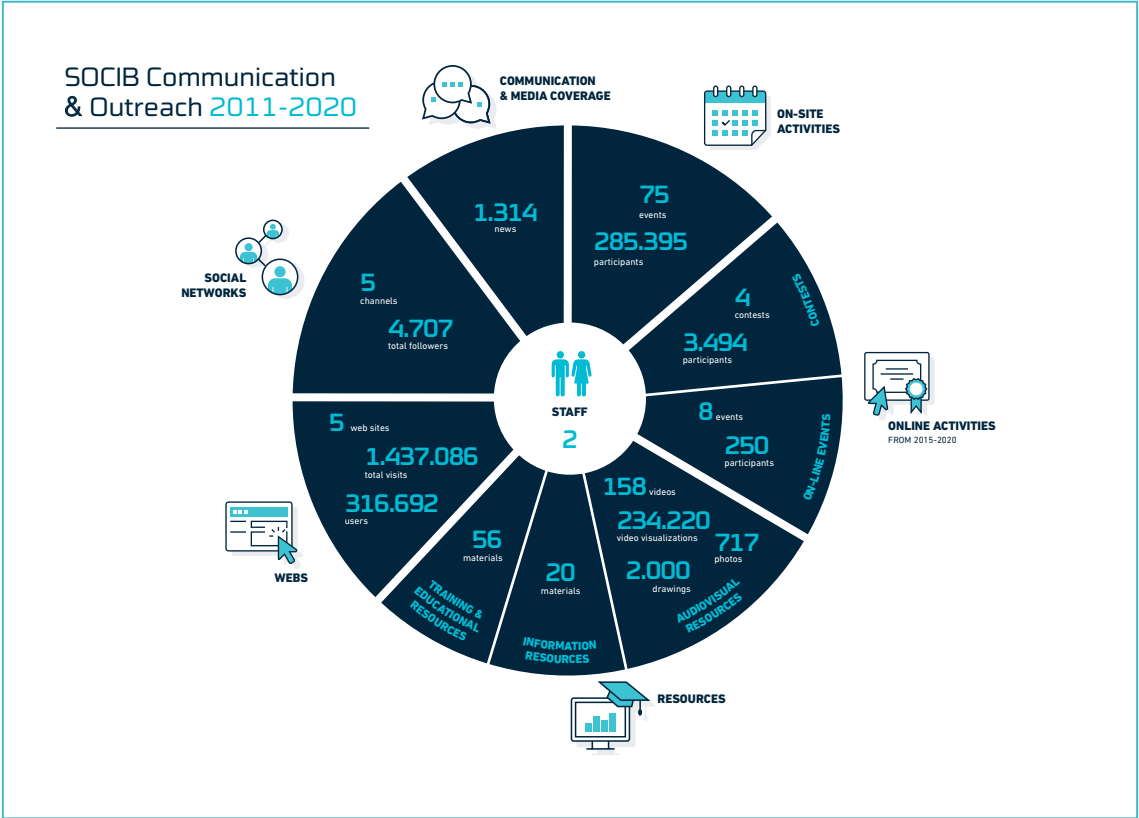
## SOCIB Observing and Forecasting Facilities 2011-2020

## Observing Facilities



## Forecasting Facilities







The ICTS SOCIB 2021-2024 Strategic Plan serves as a guide for the main areas in which we are committed to advance and strengthen our coastal observing and forecasting system, thereby enabling us to build on the data, products and services made available to researchers, marine and maritime end-users, decision-makers, companies, and citizens, and increase societal benefit through research. This document will be complemented by the Annual Action and Project Plan to ensure we are holding ourselves accountable for realising our strategic objectives through specific and measurable actions, performance indicators and outcomes. The current document will allow us to critically reflect on our progress and inform the next round of strategic planning.

*“Investigamos el mar, compartimos futuro”*

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