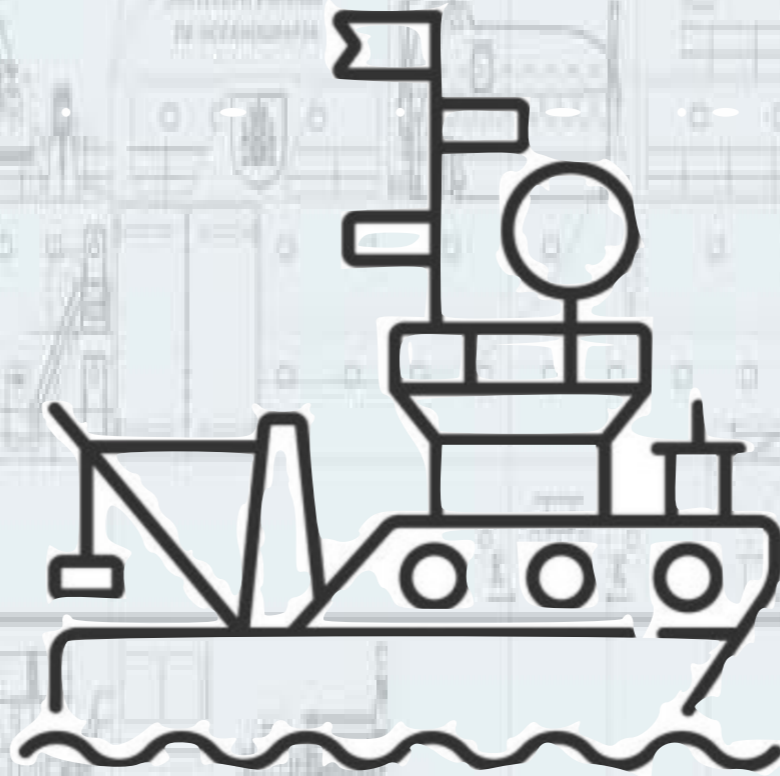


New Research Vessel for Spanish Institute of Oceanography (IEO)



June 01st - 02nd, 2021
Online meeting

Jordi Sorribas (UTM-CSIC) & Pablo Carrera (IEO-CSIC)

Singular Scientific and Technological Infrastructures (SSTI)

In Spain an important part of the scientific activity is driven by the use of the so-called Singular Scientific and Technological Infrastructures

- Facilities, resources or services to develop state-of-the-art research of the highest quality, as well as for the transmission, exchange and preservation of knowledge, the transfer of technology and the promotion of innovation.
- They are unique or exceptional in their kind
- With a very high investment, maintenance and operation cost.
- Whose importance and strategic nature justify their availability for the entire R + D + i collective.

1

They are Infrastructure of Public Ownership:



Pluriannual Strategic Plans:

- Evaluation & Evolution
- Investments
- ...

2

Competitive Open Access:



3

They are "Singular", which means they are unique in their kind:



Research Vessels in Spain Under SSTI Umbrella



9 Research Vessels:

- 2 Ocean Global (Atlantic, Antarctic, ...)
- 3 Regional (North Atlantic, Cantabric, Mediterranean sea, ...)
- 4 Local (National Coasts)

2021 IEO-CSIC

Tipo	Vessel (RV)	Length (m)	Age	Operator	Base Port
Oceánico	HESPERIDES	82,5	1991	Spanish Navy	Cartagena
	SARMIENTO DE GAMBOA	70,5	2007	CSIC	Vigo
Regional	RAMON MARGALEF	46,7	2011	IEO	Vigo
	ANGELES ALVARIÑO	46,7	2012	IEO	Vigo
	GARCIA DEL CID	37,2	1977	CSIC	Vigo
Local	FCO.DE PAULA NAVARRO	30,5	1987	IEO	Palma Mallorca
	SOCIB	24,4	2012	IEO	Palma Mallorca
	MYTILUS	24,0	1996	IEO	Vigo
	LURA	14,3	1981	IEO	La Coruña

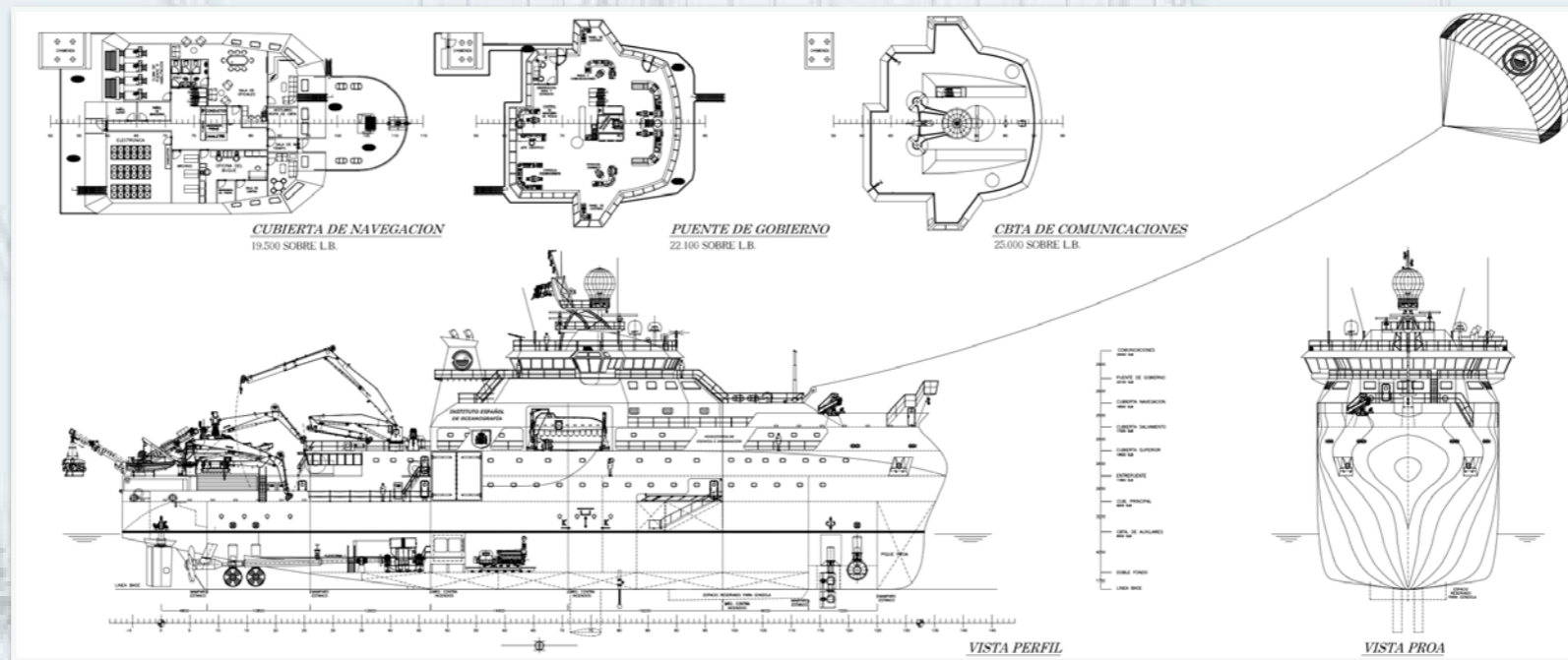
S. S. T. I.: Spanish Oceanographic Fleet



Evaluated at the latest strategic plans

IEO: “Expand the research possibilities of the fleet with a global fisheries & multipurpose research vessel.”

2008: Initial specs, needs and draft design



2008 draft

A long way to find financing ... // (Stops and Starts)

2020: Final decision from Ministry of Science & Signature of the funding agreements

September 2020 to June 2021

-
- ▶ September 2020
 - Review initial project
 - Update specifications and needs
 - Rewrite docs for tender
 - ▶ End December 2020: Tender publication
 - ▶ March 2021: Receiving Offers.
 - ▶ Now ... : Evaluation.

Review of initial Draft and “Use Cases”

Initial Idea:

- Global Vessel
- Fisheries Research and Oceanography
- Green Vessel (low carbon footprint)

Review of Scientific Needs

- For what kind of surveys we want to use the vessel ?
- Wich ones are not fully covered with actual fleet ?

Survey Typologies

- ▶ Where: Geographical Areas & Range Depths
- ▶ When: Temporal Frame
- ▶ With Who: Aprox Man power needed
- ▶ What: Working Scenarios

▶ What We want to do onboard: Working Scenarios

- Name and Short Description
- Deck Requieriments: Space & Equipment (frames, cranes, winches, ...)
- Indoor Spaces required: Labs & Tech Spaces, specific needs
- “Always onboard” instrumentation needed
- Non permanent instrumentation needed
- Specific Technical Services required (water, power, comms, air, ...)
- People involved in
- Navigation requirements
- Dependency and foreseen Incompatibites with other scenarios

▶ Detailed needs

- “Always onboard” instrumentation needed

- Minimum Tech Specs

- Spaces and desired Location

- Tech Services Required

- Dependencies with Other equipments & other needs

- Indoor Spaces required: Labs & Tech Spaces, specific needs

- Minimum space required. Num of concurrent users & Equipment

- Preferred Location

- Specific “clima & comfort” conditions

- Contiguity with other spaces

- Acces to Tech Services & Lines

▶ Detailed needs

- Non permanent instrumentation needed

- Space needed (dimensions)

- Tech Services Required

- Dependencies with Other equipments & other needs

- Specific Technical Services required (water, power, comms, air, ...)

- Minimum Tech Specs

- Desired Location

- Dependencies with Other equipments & other needs

► Dependencies Matrix

13 Survey “Typologies”

26 Working Scenarios

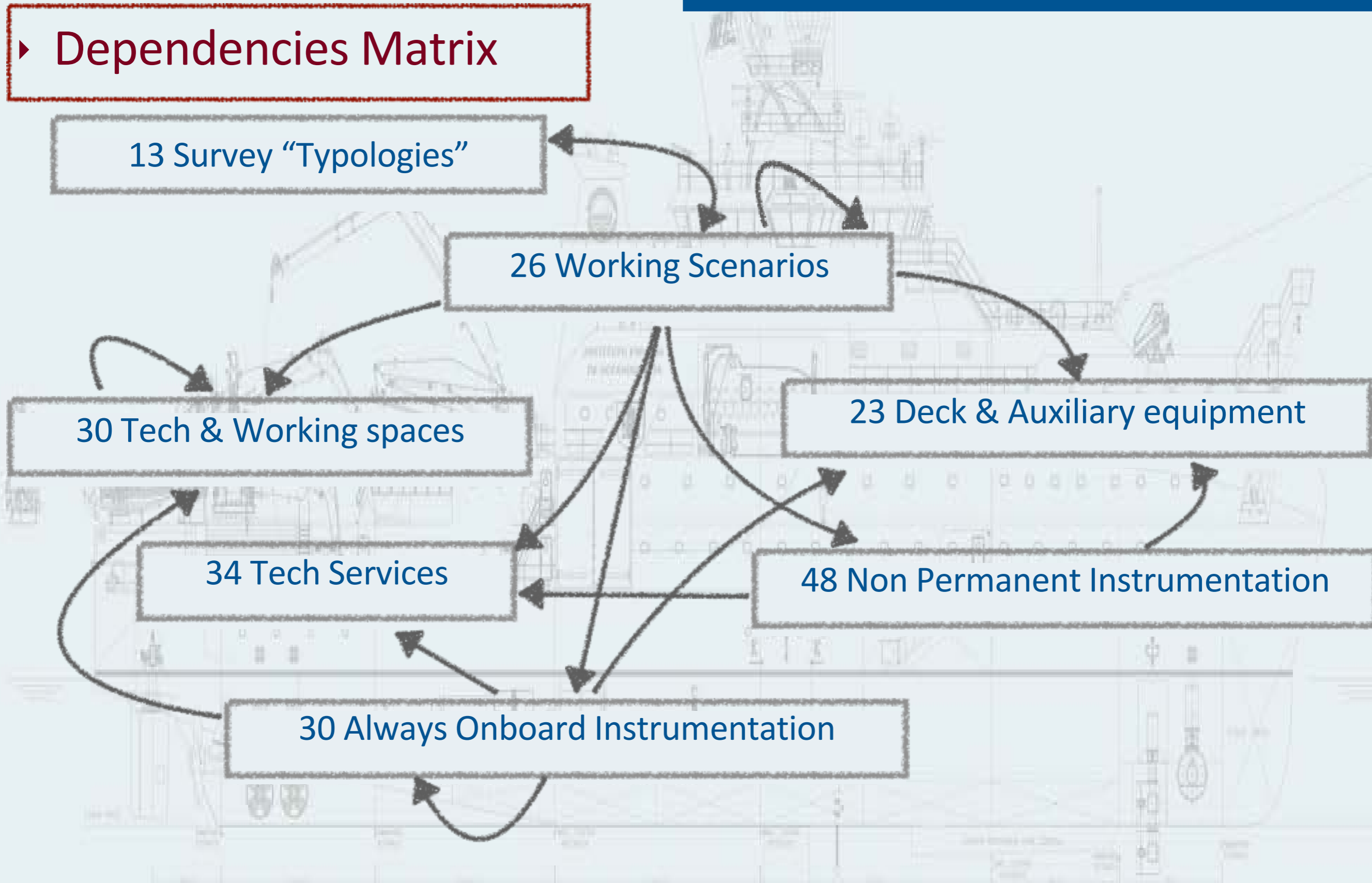
23 Deck & Auxiliary equipment

30 Tech & Working spaces

34 Tech Services

48 Non Permanent Instrumentation

30 Always Onboard Instrumentation



► Dimensions , Capacity & Operative Profile

<i>Length Lpp (m)</i>	<i>75.0 - 85.0 m</i>
<i>Total Beam (m)</i>	<i>17.0 - 19.0 m</i>
<i>Depth to Main Working Deck (m)</i>	<i>> 8.4 m</i>
<i>Draft of Project (m). Gondola included</i>	<i>6.5 m</i>
<i>Crew (max)</i>	<i>19 pax</i>
<i>Research & Tech Staff</i>	<i>39 pax</i>
<i>Maximum required speed (knots)</i>	<i>14 kn</i>
<i>Working Deck</i>	<i>340 m2 (free space).</i>

Sailing at speeds of 10 knots or more: 22%

Sailing at speeds between 7 and 10 knots: 14%

Sailing at speeds between 3 and 7 knots: 26%

In station or navigation at speeds less than 2 knots: 38%

► Specific Classification

<i>Silent Vessel</i>	<i>DNV-GL SILENT R</i>
<i>Comfort</i>	<i>COMF-NOISE- 1 COMF-VIB-1 (BV)</i>
<i>Cool Waters Condition</i>	<i>POLAR CLASS 7</i>
<i>Dynamic Positioning</i>	<i>DP2 ; DYNAPOS AM/AT R.</i>
<i>Pollution Prevention</i>	<i>CLEANSHIP SUPER (BWT, GWT, HVSC)</i>
<i>HULL</i>	<i>SPECIAL SERVICE-OCEANOGRAPHIC AND FISHING RESEARCH</i>

▶ “Green” Vessel. Low Carbon FootPrint & Emissions

<i>Engines</i>	<i>Dual: Diessel & LNG</i>
<i>LNG Range & Capacity</i>	<i>8 days at 9 Kn (SS2 sea state)</i>
<i>Lowest possible fuel consumption</i>	<i>Tender evaluation condition</i>
<i>Greenhouse Gas Strategy towards 2050</i>	<i>Energy Efficiency Design Index (IMO EEDI) Estimation</i>
<i>Reduction of electricity consumption</i>	<i>Energy Regeneration System for Winches and Winches Efficient lighting and air conditioning ...</i>
<i>Aids for efficient navigation</i>	<i>Monitoring and Registration (Consumption, Efecttive Power, Drive Systems Status) Creation of navigation histories for the establishment of Efficient Navigation parameters Calculation of EEOI for different Survey Typologies</i>

Project and construction of a global multipurpose oceanographic and fisheries research vessel, with her respective equipment and supplies

70.000.000 € (excl. tax.)

► Evaluation Criteria

<i>Prix</i>	22
<i>Fuel consumption</i>	22
<i>LNG Autonomy</i>	5
<i>Additional Equipment</i>	5
<i>Garantee extension</i>	3
<i>Aids for External consultancy during design and construction phases</i>	3

<i>Energy Efficiency Management System</i>	4
<i>Design and distribution of technical scientific spaces (interiors / laboratories)</i>	14
<i>Deck equipment and operations solution for working scenarios</i>	14
<i>Onboard Comfort</i>	8

Hopping to have a new and excellent research vessel soon (end of 2023...)

