Joint European Research Infrastructure network for Coastal Observatory – Novel European eXpertise for coastal observaTories - **JERICO-NEXT**

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V0.2	10/04/19	Introduction	S. Sparnocchia
V0.3	16/08/19	Access provision	S. Sparnocchia
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Approvals				
	Name	**Organisation**	**Date**	**Visa**
Coordinator	P. Farcy	IFREMER	02/09/2019	PF
WP Leaders	S. Sparnocchia	CNR ISMAR	02/09/2019	SS

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1. Executive Summary

During its lifetime JERICO-NEXT offered coordinated 'free of charge' Trans-National Access (TNA) to researchers or research teams from academy and industry to the original coastal infrastructures described in D7.1 (Sparnocchia et. al, 2016). Potential users requested access by submitting (in writing) a description of the work they wished to carry out in one of the three open calls launched by the JERICO-NEXT Consortium in 2016, 2017 and 2018 (Sparnocchia and Ferluga, 2019) .A Selection Panel formed by independent experts was responsible for evaluating the access proposals and selecting those who received support.

This document refers to “WP7 - Transnational Access to Coastal Observatories” and is an update of D7.2 (Sparnocchia and Ferluga, 2018). It contains an analysis of the results of the action.

2. Introduction

Facilitating access to RIs and maximising their use are high priorities for the Commission. As part of the Trans-National Access (TNA) activity implemented in WP7, JERICO-NEXT offered opportunities to researchers or research teams from academy and industry to access original coastal infrastructures for measurement campaigns and instrument testing. These opportunities are expected to help building long-term collaborations between users and JERICO-NEXT partners, and to promote innovation and transfer of know-how in the coastal marine sector.

Access has been provided 'free of charge' following three open calls, once per year from 2016 to 2018, and the evaluation of proposals by an independent panel of experts. A user or group of users obtained access to an infrastructure to test an instrument or collect data (the latter applies to gliders).

A dedicated section has been developed on the JERICO-NEXT website, http://www.jerico-ri.eu/tna/, to promote the TNA activity (Sparnocchia et al., 2016b). This includes an on-line catalogue describing the TNA offer to help potential users evaluating, among the available infrastructures, those suitable for the purposes of their research.

The catalogue of TNA service was made by two chapters, one including 30 proper observing systems, another including 4 supporting facilities (laboratories) and 1 special equipment (Figure 1 and Table 1). Use of supporting facilities and special equipment was ancillary to applications for using one or more observing systems in the first call and was open also to single use only from the second call.

We must mention that additional special equipment was offered by IRIS (Norway) in the original work plan, but was withdrawn in the first amendment of the Grant Agreement.

Each facility and services offered are described with details in D7.1 (Sparnocchia et al., 2016b).

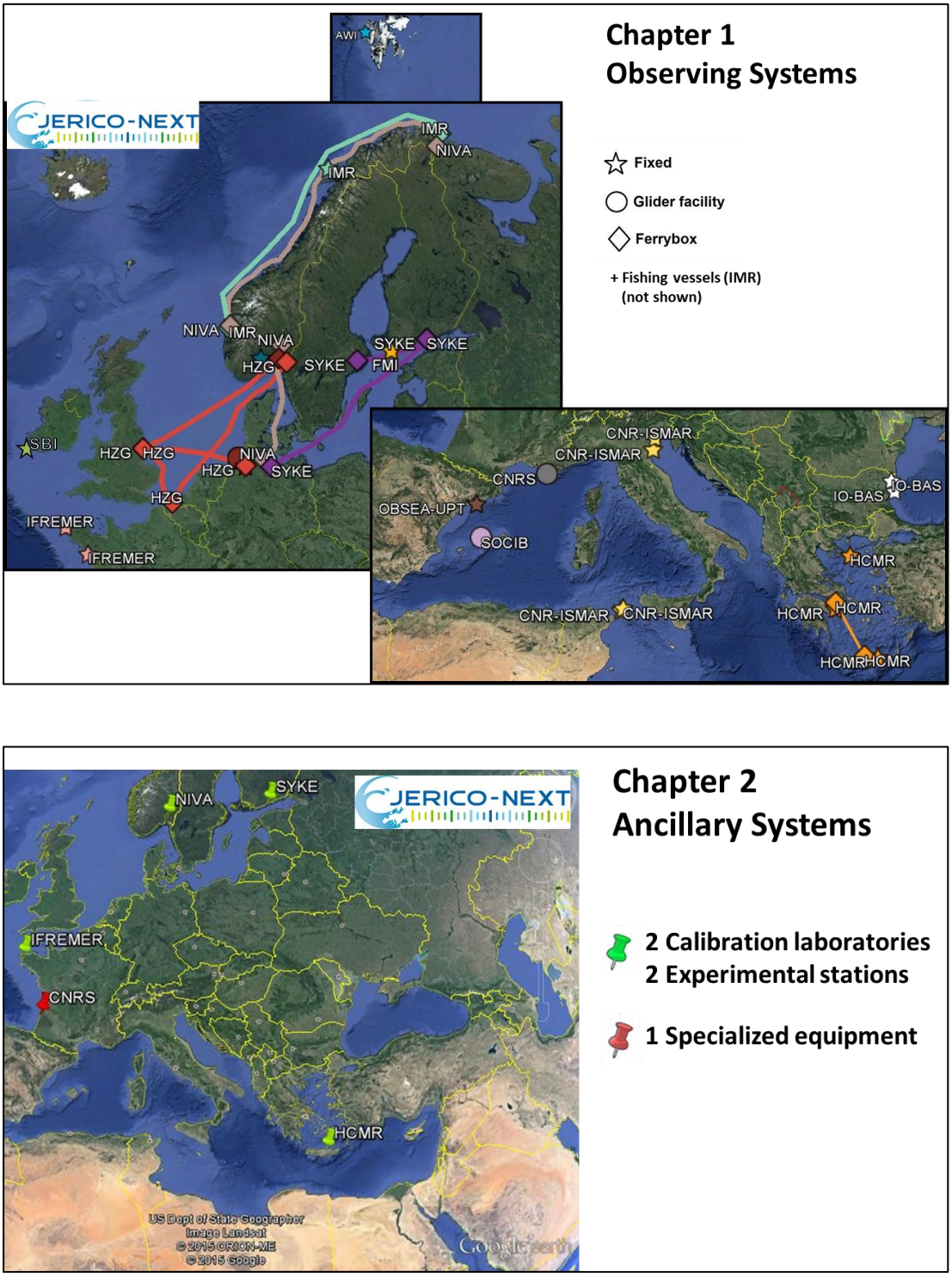


Figure 1: *Location of the infrastructure in the JERICO-NEXT TNA catalogue.*

Table 1: *The JERICO-NEXT TNA catalogue. The last column represents the access offered by each facility as resulting in the Grant Agreement.*

Chapter 1 – Observing systems

Organization	Country	Name	Short name	Unit of Access (UA)	Access available (in UA)
CABLED OBSERVATORIES					
FMI	Finland	Atmospheric and Marine Research Station	Utö	day	120
IFREMER	France	Coastal-cabled observatory EMSO-Molène	MOLENE	day	95
HZG/AWI	Germany	Underwater Node Helgoland	COSYNA_UNH	14 days	4
HZG/AWI	Germany	Underwater Node Spitzbergen	AWIPEV_UNS	14 days	2
IMR	Norway	LoVe cable based observatory	CABLE	day	100
SBI	Ireland	Galway Bay Cabled Observatory	CPO	month	2
UPC	Spain	Expandable Seafloor Observatory	OBSEA	day	210
FERRYBOXES					
HCMR	Greece	Poseidon Ferrybox	PFB	month	12
HZG	Germany	COSYNA FerryBox	COSYNA_FB	day	120
IMR	Norway	MV Vesterålen	FERRY	day	100
NIVA	Norway	MS Color Fantasy	FA	day	120
NIVA	Norway	MS Trollfjord	TF	day	120
SYKE	Finland	MS Finnmaid	FINNMAID	day	60
SYKE	Finland	MS Silja Serenade	SILJA SERENADE	day	60
FISHING VESSELS					
IMR	Norway	FV Vester Junior	FISHING1	day	50
IMR	Norway	FV Brattholm	FISHING2	day	50
FIXED PLATFORMS					
CNR	Italy	Acqua Alta Oceanographic Tower	Acqua Alta	2-months	2
CNR	Italy	Sicily Channel Observatory	SiCO	6-months	3
CNR	Italy	Meteoceanographic site S1-GB	S1-GB	4-months	1
HCMR	Greece	Saronikos buoy	SB	month	12
HCMR	Greece	Heraklion Coastal Buoy	HCB	month	12
HCMR	Greece	Athos buoy	AB	month	6
IFREMER	France	MOLIT Buoy	MOLIT	day	92
HZG	Germany	Stationary FerryBox system	COSYNA_SFB	day	120
IO-BAS	Bulgaria	Weather and sea state observing system	GALATA	month	2
IO-BAS	Bulgaria	Port Operational Marine Observing System (st. Balchik)	POMOS	month	2
SBI	Ireland	Galway Bay Data Buoy	SMARTBUOY	month	2

Table 1: *The JERICO-NEXT TNA catalogue. The last column represents the access offered by each facility as resulting in the Grant Agreement (continued).*

Chapter 1 – Observing systems

Organization	Country	Name	Short name	Unit of Access (UA)	Access available (in UA)
GLIDERS					
CNRS	France	CNRS-INSU Glider National Facility	GNF	day	127
HZG	Germany	COSYNA Glider	COSYNA_GL	month	2
SOCIB	Spain	SOCIB glider facility	SOCIB GF	day	110

Chapter 2 – Supporting facilities and specialized equipment

Organization	Country	Name	Short name	Unit of Access (UA)	Access available (in UA)
SUPPORTING FACILITIES					
HCMR	Greece	Poseidon Calibration Lab	PCL	week (*)	4
IFREMER	France	Ifremer Metrology Laboratory	METLAB	week (*)	5
NIVA	Norway	NIVA Research Station	NRS	week (*)	5
SYKE	Finland	SYKE Marine Research Centre	SYKE MRC-Lab	8 hour day	25
SPECIAL EQUIPMENT					
CNRS	France	Sediment Profile Imager	SPI-H	week	5

(*) week=5 days of 8 hours

3. Access provision

Thirty out of forty proposals presented in the three calls were evaluated and selected by the Selection Panel. Two of these were canceled by the access provider SOCIB for technical reasons, and therefore were not carried out. Finally twenty-eight TNA projects were supported by JERICO-NEXT. Details on the supported projects and their activities are part of D8.11 (Sparnocchia and Ferluga, 2019).

Twenty-four of the thirty-five facilities available have been targeted by users. Eight facilities provided access to more than one TNA project (Fig. 2) and eight TNA projects accessed more than one facility (Table 2). The operators of the targeted facilities contributed to the implementation of these projects by providing all the logistical, technological and scientific support as well as specific training when necessary.

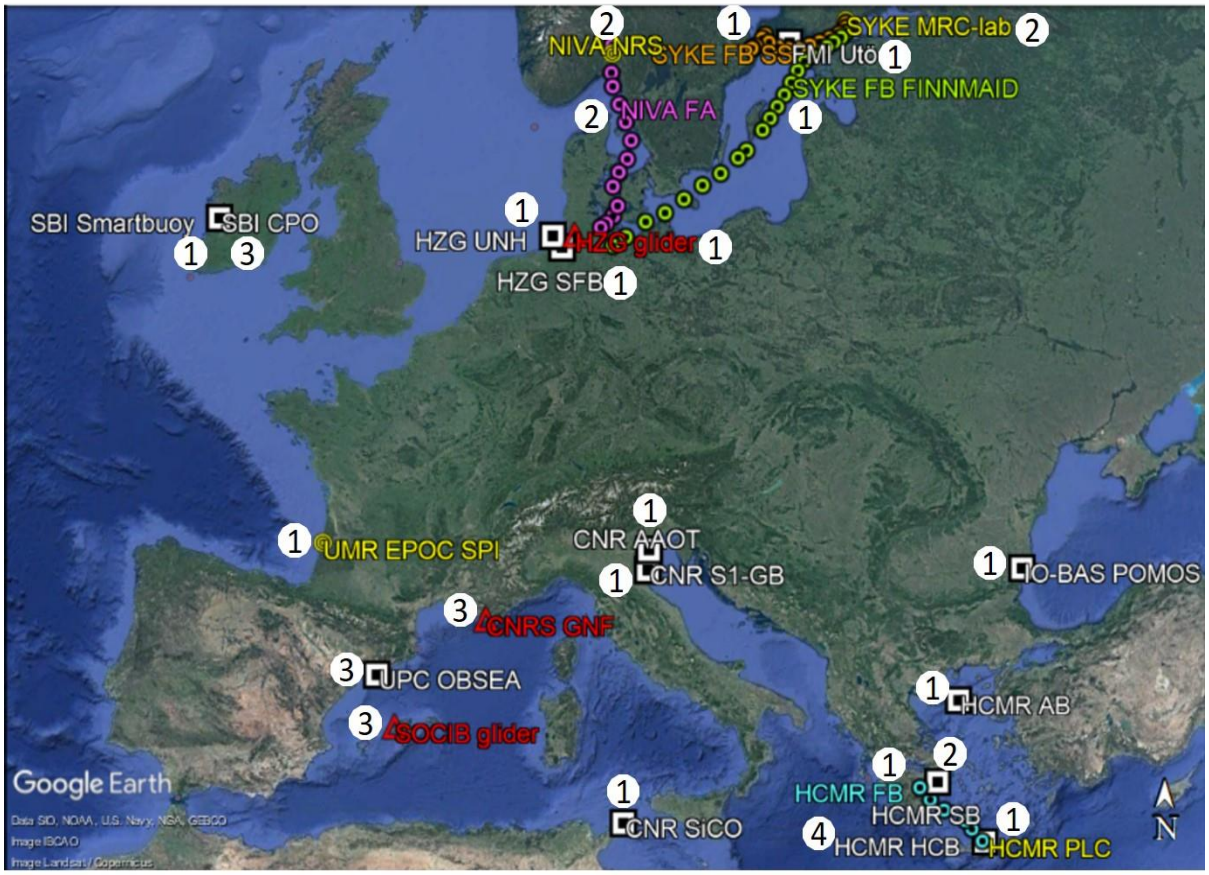


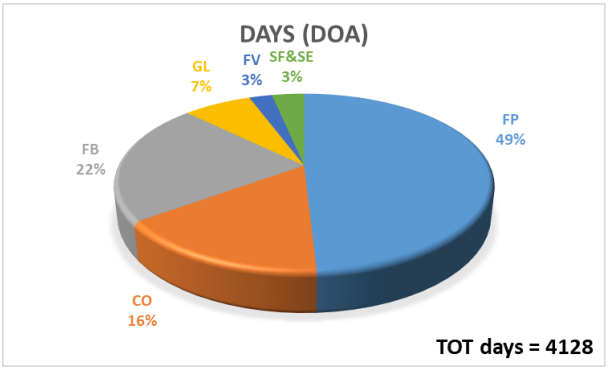
Figure 2: *JERICO-NEXT facilities targeted by user's proposals. The circles lined up identify routes of the ships carrying ferrybox systems; the white squares identify fixed stations and cabled observatories; the red triangles identify the laboratories on the ground of the gliders; the yellow circles identify supporting facilities. The number of proposals approved for the relevant facilities is indicated within the white circles.*

Table 2: *Facilities targeted by TNA projects and respective units of access (UA) provided. Legend: FP = Fixed Platform; CO = Cabled Observatory; FB = FerryBox; GL = Glider; SF&SE = Supporting Facility/Special Equipment.*

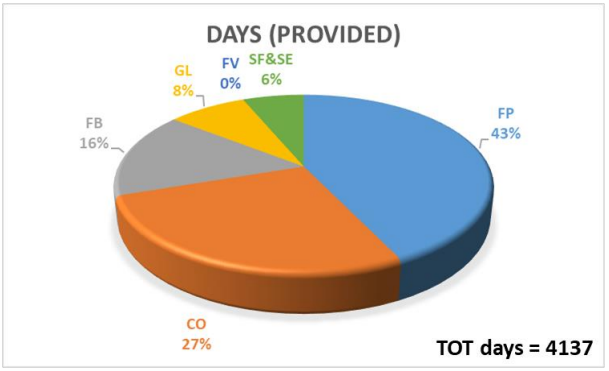
Organisation short name	Country	Facility short name	Type of infrastructure	TNA Project Acronym	Units of Access (UA) provided
CNR	Italy	Acqua Alta	FP	MAICA	3
		SiCO	FP	DYNAS	1.8
		S1-GB	FP	MOCo Sea Pass	1.4
CNRS	France	GNF	GL	FinisGlider	53.5
				GLIDER-SOUTH	70
				GETSCh	50
CNRS/UNIV BORDEAUX	France	SPI-H	SE	WGMP-SPI	8
FMI	Finland	Utö	CO	ANB Sensors pHIMS	54
HCMR	Greece	PCL	SF	FluorMed-1	2.5
		PFB	FB	CarbonAS	12
		AB	FP	LETS-SAT	4
		HCB	FP	FluorMed-1	12
				LETS-SAT	
				MicroPlastox	
				MONICOAST	
		SB	FP	LETS-SAT	12
				MONICOAST	
HZG	Germany	COSYNA_GL	GL	BB-TRANS	0.9
		COSYNA_SFB	FP	MEPHY	12
HZG/AWI	Germany	COSYNA_UNH	CO	ReMoBiB	27.5
IO-BAS	Bulgaria	POMOS	FP	MOCo Sea Pass	2.3
NIVA	Norway	FA	FB	MicroPlastox	202
				Easy On-Line microLFA	
		NRS	SF	INTERCARBO	19.3
				NitrateComp	
SBI	Ireland	SMARTBUOY	FP	ANTEIA	6
		CPO	CO	ADVANCE	2.2
				ECSyrinx	3.6
				MicroPlastox	1.8
SOCIB	Spain	SOCIB GF	GL	ABACUS-3	57
				ABACUS-4	58
				DEFPAM-G	20
SYKE	Finland	SILJA SERENADE	FB	ANB Sensors pHIMS	47
		SYKE MRC-Lab	SF		35
		FINNMAID	FB	MultiFluoro	61
UPC	Spain	OBSEA	CO	EvoLUL	285
				ADVANCE	160
				FOULSTOP	

Comparing the initially available UAs (Table 1) with those actually provided (Table 2), after having converted them into days for homogeneity, we find that 4137 days of access were actually provided, when the initial offer was 4128 days. Thus, in terms of JERICO-NEXT infrastructure use days, the original plan was respected. But it should be noted that this number is achieved with a different distribution between infrastructures, in fact, 12 of the infrastructures in the original catalogue did not provide access (33% of the initial offer). Most of the access has been provided during 2018 (Fig. 3c).

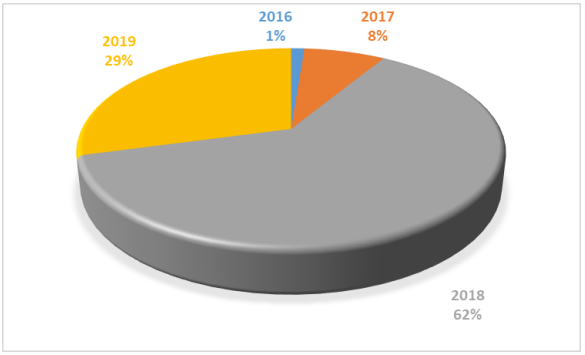
In Figure 3a-b we compare the original access offer with the access actually provided by each type of infrastructure. This comparison shows that the less successful infrastructures were the fishing vessels, which had no users, and the most successful were the cabled observatories, which provided more access than the budgeted one, hosting seven TNA projects (Table 2).



(a)



(b)



(c)

Legend: FP = Fixed Platform;
CO = Cabled Observatory;
FB = FerryBox;
GL = Glider;
FV = Fishing Vessel;
SF&SE = Supporting Facility/Special Equipment

Figure 3: *Access offer (a) and actual access provision (b) by type of infrastructure in days; (c) Access provision by year.*

Table 3 contains information concerning users' participation. Out of a total of 102 users who have visited the JERICO-NEXT infrastructures through the TNA program, 73 are men and 29 women. Five of them were involved in multiple TNA projects. Five users hold a non-EU/Associated Country citizenship (Fig. 4), one of them works in Europe (Fig. 5). Comparing Figures 4 and 5, it can be deduced that several users work in a country other than that of which they are citizens.

Table 3: *TNA projects and respective number of users per group, their home institution country and legal status. The first country is the one of the user group leader. The legal status of the home institution follows the classification of the European Commission: UNI = University and other higher education organisations; RES = Public research organisation; SME; PRV = Other Industrial and/or profit Private organisation; OTH = Other. Number of EU users includes also those from Associated countries (https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf).*

TNA Project Acronym	Host infrastructure(s) – Country(es)	EU users		non EU users		Home institutions Legal Status	Gender		Activity Domain (Discipline)
		Number	Home institution Country(ies)	Number	Home institution Country		M	F	
ABACUS-3	SOCIB GF - Spain	4	Italy	0	-	UNI	3	1	Physics
ABACUS-4	SOCIB GF - Spain	7	Italy, France, Spain	2	Algeria	UNI, RES	6	3	Physics
ADVANCE	CPO - Ireland, OBSEA - Spain	4	Italy, Spain	0		RES, UNI	3	1	Earth sciences & Environment
ANB Sensors pHIMS	SYKE MRC-Lab, SILJA SERENADE, Utö - Finland	3	UK	0	-	SME	3	0	Chemistry
ANTEIA	SMARTBUOY - Ireland	3	Spain	0	-	SME	2	1	Engineering & Technology
BB-TRANS	COSYNA_GL - Germany	4	Spain, Italy	0	-	OTH, RES	3	1	Earth sciences & Environment
CarbonAS	PFB - Greece	3	Norway	0	-	RES	1	2	Earth sciences & Environment
DEFPAM-G	SOCIB GF - Spain	2	Belgium	0	-	UNI	1	1	Life sciences & Biotech
DYNAS	SiCO - Italy	5	France	0	-	UNI, RES	3	2	Physics
Easy On-Line	FA - Norway	3	Italy	0	-	PRV	3	0	Engineering & Technology
ECSyrinx	CPO - Ireland	3	UK	0		PRV	3	0	Earth sciences & Environment
EvoLUL	OBSEA - Spain	3	Germany, France, Spain	0	-	SME, RES. UNI	3	0	Engineering & Technology
FinisGlider	GNF - France	5	Spain	0	-	RES	2	3	Physics, Chemistry
FluorMed-1	PCL, HCB - Greece	4	Finland, France	0	-	RES, UNI	3	1	Life sciences & Biotech
FOULSTOP	OBSEA - Spain	4	France	0	-	RES	4	0	Engineering & Technology

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TNA Project Acronym	Host infrastructure(s) – Country(es)	EU users		non EU users		Home institutions Legal Status	Gender		Activity Domain (Discipline)
		Number	Home institution Country(ies)	Number	Home institution Country		M	F	
GETSCh	GNF - France	4	Tunisia, France	2	Algeria	RES	4	2	Earth sciences & Environment
GLIDER-SOUTH	GNF - France	6	Malta, Italy	0	-	UNI, RES	6	0	Earth sciences & Environment, Physics
INTERCARBO	NRS - Norway	8	Finland, France, Germany, Italy	0	-	RES	6	2	Earth sciences & Environment
LETS-SAT	AB, HCB, SB - Greece	2	Malta	0	-	SME	2	0	Information & Communication
MAICA	Acqua Alta - Italy	3	France	0	-	UNI	3	0	Earth sciences & Environment
MEPHY	COSYNA_SFB - Germany	6	Switzerland, France, Italy	0	-	UNI, SME	3	3	Earth sciences & Environment, Chemistry, Information & Communication Technologies
MicroPlastox	CPO – Ireland, FA – Norway, HCB - Greece	1	Portugal	0	-	UNI	1	0	Chemistry
MOCo Sea Pass	S1-GB - Italy, POMOS -	3	Greece	0	-	RES	1	2	Chemistry
MONICOAST	HCB, SB - Greece	4	Spain, Italy	0	-	OTH, UNI	2	2	Earth sciences & Environment
MultiFluoro	SYKE MRC-Lab, FINNMAID - Finland	3	UK	0	-	PRV	3	0	Engineering & Technology
NitrateComp	NRS - Norway	3	Germany	0	-	RES	2	1	Earth sciences & Environment
ReMoBiB	COSYNA_UNH - Germany	1	Netherlands	0	-	RES	1	0	Earth sciences & Environment
WGMP-SPI	SPI-H - France	0	-	2	Brazil	UNI	1	1	Life sciences & Biotech

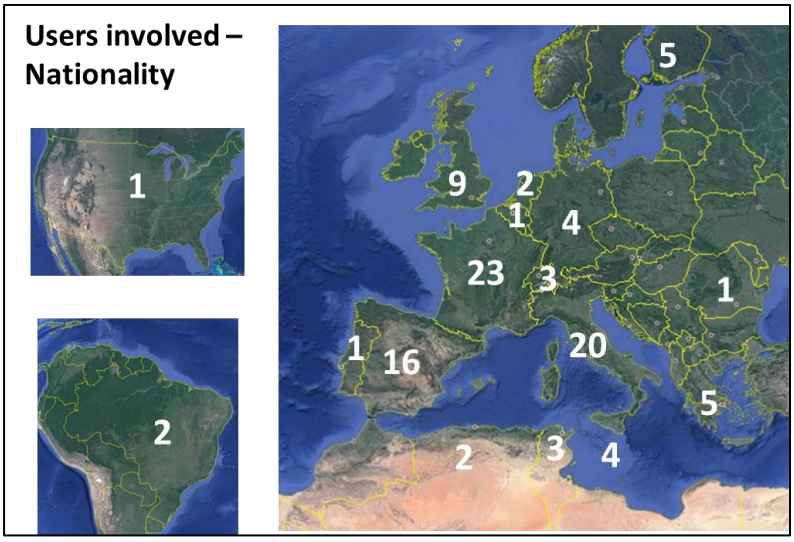

Figure 4: *Number of users per Country. The country is the one where the user holds the citizenship (Nationality).*

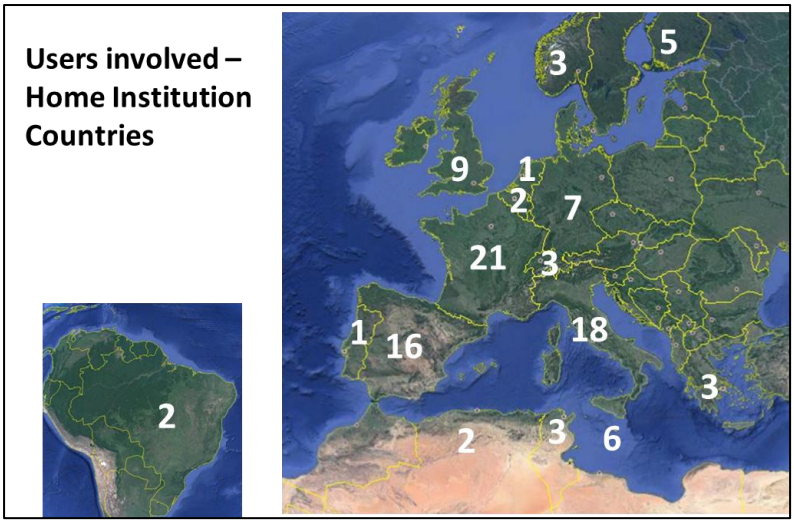

Figure 5: *Number of users per Country. The country is where the user works (Home Institution Country).*

Forty-one institutions were involved in this activity, mainly universities and public research organizations (UNI and RES in table 4), totaling 32 institutions and 79 users overall. The remaining categories include 9 companies / organizations and 23 users.

Table 4*: Number of participating institutions distributed following their legal status as defined in Table 3. The respective number of users is also indicated.*

Legal status	OTH	PRV	RES	SME	UNI
Number of organizations	1	3	18	5	14
Number of users	4	9	44	10	35

4. Conclusions

Building on what had previously been started by the JERICO-FP7 (Sparnocchia and Meccia, 2015; Sparnocchia et al. 2015; Sparnocchia et al. 2016a) project, JERICO-NEXT consolidated the procedures for sharing its infrastructures through transnational access, also contributing to a better visibility of them within the scientific and technological communities.

Both JERICO and JERICO-NEXT organized three Calls for transnational access. Access implementation took place in 2012-2015 during the first project and in 2016-2019 during the second.

One of the rules of TNA is that the access must be transnational, i.e. the user group leader and the majority of the users in the group must work in a country other than the country where the installation is located. This was for both JERICO and JERICO-NEXT, including those user groups involving members working in the same country where the visited facility is located.

Having a higher budget (three times more), JERICO-NEXT was able to make available to users more infrastructures than JERICO, receiving and supporting a greater number of access proposals, providing 55% more access days, and hosting twice as many users (Table 5).

However, in both projects around 30% of the facilities offered were not targeted by users and the demand also changed among those of success, some of which were particularly successful in hosting more than one project (Fig. 2 and Fig. 6).

This result indicates a path to follow for the future of JERICO-RI, namely to focus on a limited number of infrastructures / facilities that have demonstrated their ability to attract the user community.

***Table 5**: Comparison of the results of JERICO-FP7 (G.A. 262584) and JERICO-NEXT.*

	JERICO-NEXT	JERICO
Facilities in the catalogue	35	18
Targeted facilities (% vs offered facilities)	24 (69%)	13 (72%)
Submitted TNA projects	40	24
Supported TNA projects (% vs submitted projects)	28 (70%)	19 (79%)
Number of users (Women, %)	102 (29, 28%)	55 (14, 34%)
Access provision (days) DoA %	4137 4128 100%	2670 1044 256%

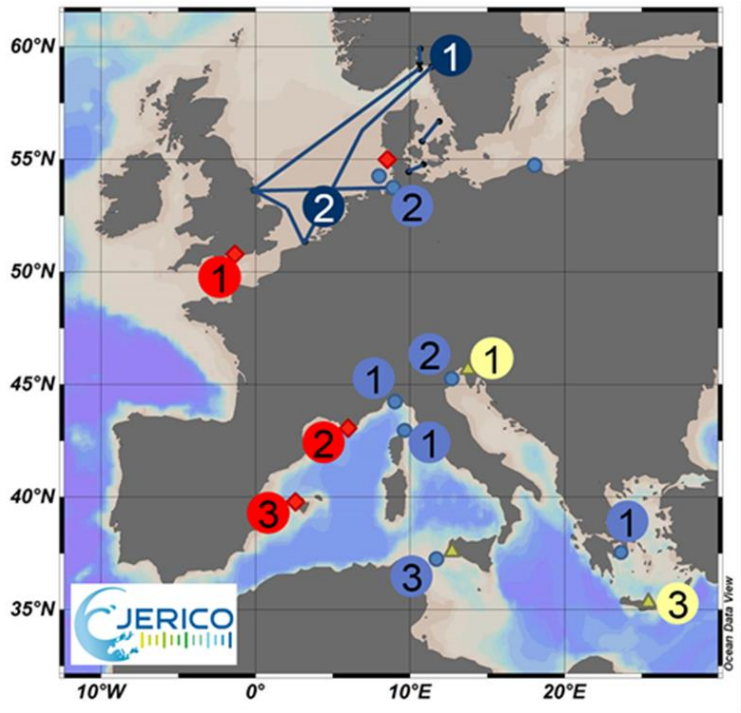

***Figure 6**: JERICO facilities targeted by user's proposals: blue lines identify routes of ships carrying ferrybox systems, red circles identify glider land stations, blue circles identify fixed station positions and yellow circles identify calibration laboratories. Numbers inside the circles indicate the number of proposals supported by JERICO. Four proposals accessed two different infrastructures each.*

We complete this section by schematizing the routes of the transnational access in JERICO-NEXT in the following Figure 7.

We can conclude from this figure that the JERICO-NEXT transnational access program is proving effective in supporting and mobilizing researchers and industrial companies through Europe, even if most of the routes are inside the Mediterranean region and towards the northern ones. In doing so, it contributes to the advancement of knowledge and technology and plays a role in strengthening research capacity within the European Research Area (ERA), a unified area open to the world, where scientific knowledge, technology and researchers circulate freely.

Research infrastructures play a crucial role in the development and maintenance of the ERA. The boost to research capacity, strengthened by the productive circulation of knowledge, talented researchers, technical experts and engineers, should generate broad and lasting benefits for the economy and society and increase cohesion among the Member States. The JERICO joint research infrastructure has contributed to this important task over the past eight years with projects funded by the European Commission (JERICO and JERICO-NEXT) and the consortium intends to continue in this direction in the future.

Figure 7: *JERICO-NEXT transnational research routes. The thickness of the lines is proportional to the number of users, as indicated in the insert.*

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