



Regional Defense
Partnership for the
21st Century
RDP-21: A Catalyst
to Partnering with
the Military

2025 Fathomwerx Update



Exercises in Safety, Autonomy, and a University Institute

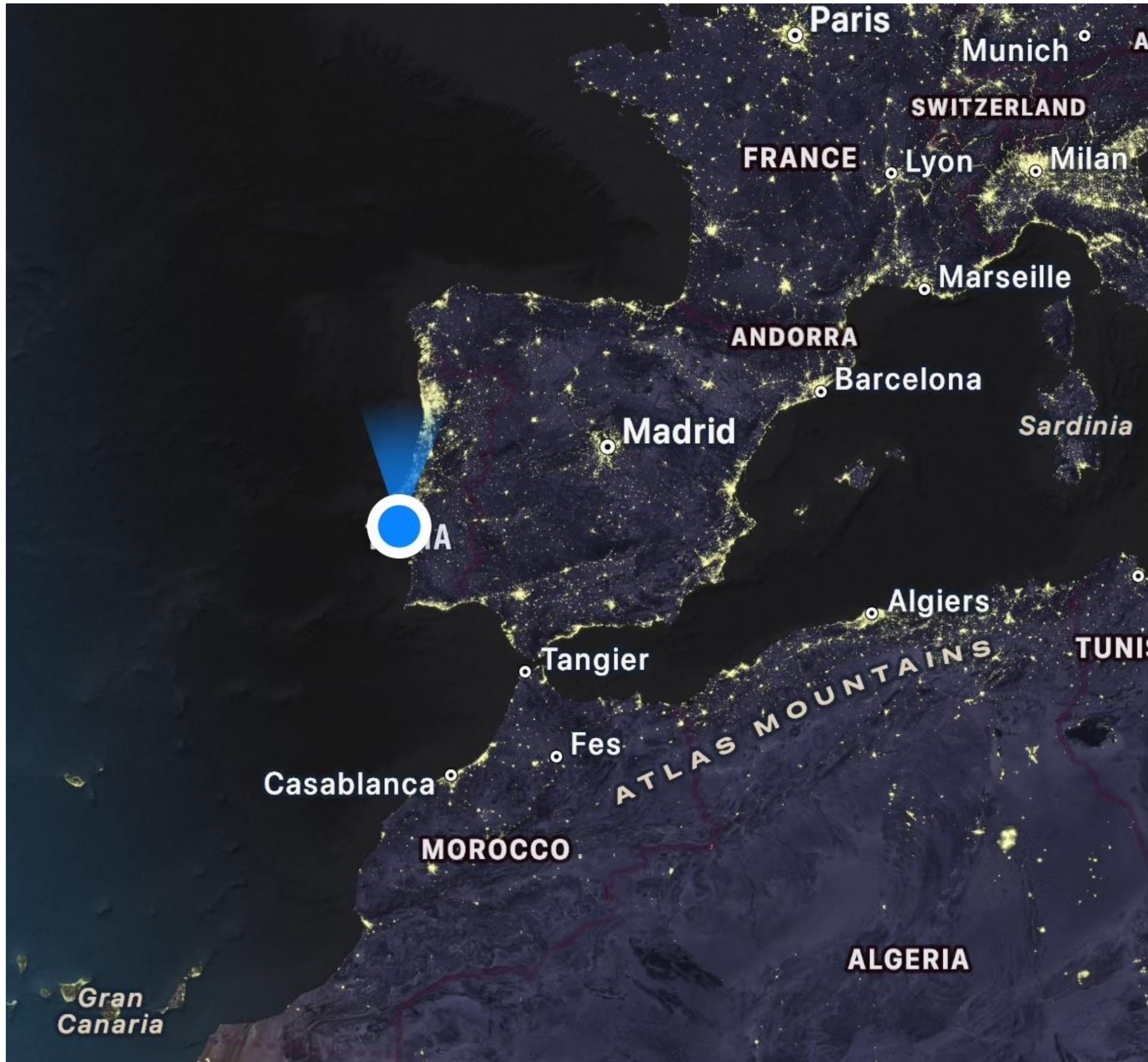
Brendan Applegate, Lead for Fleet Experimentation and Exercises NSWC-PHD

Alan Jaeger, Office of Research and Technology Applications Manager,

Percy Hobart Fellow, and Ventura Tech Bridge Director

Jason Miller, Ph.D., Professor of Mathematics at CSUCI

Bill Simmons, Ph.D., NavalX THING



Paris

Munich

SWITZERLAND

FRANCE

Lyon

Milan

Marseille

ANDORRA

Barcelona

Sardinia

Madrid



Algiers

Tangier

TUNISIA

Fes

Casablanca

ATLAS MOUNTAINS

MOROCCO

ALGERIA

Gran Canaria

Outline



- Fathomwerx
- Fathomwerx and Academia
- the Institute for Technology and Collaboration
- the Navy as catalyst for economic competition
 - Grey Flag
 - Autonomous Proving Ground (APG)
 - Advanced Naval Technology Exercises (ANTX) - Coastal Trident
 - Technology Free Zone (Portugal REPMUS)
- Conclusion



Ventura County Vision

Recognition as a place where the innovation of new technology applications occurs, and Naval Base Ventura County is the engine that powers this regional collaboration.

Strategies:

- Continuously innovate military technological capabilities
- Use technology partnerships as a catalyst for economic development

Fathomwerx



Fathomwerx



Fathomwerx Innovation Lab



Fathomwerx Innovation Lab



Fathomwerx

- About Us on website:

“FATHOMWERX is a technology-based collaborative that includes the EDC, Matterlabs, NAVSEA, NAVFAC, and the Port of Hueneme. Serving as a public-private laboratory, community, and resource for technological innovation, the partners strive to fuse small and non-traditional companies, academic institutions, and other Department of Defense stakeholders together to work on the most challenging problems in military, port, and maritime domains.”

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Fathomwerx

- Fathomwerx does not have a systematic way to engage Academic Institutions in its work
- Many professors and students from CSU Channel Islands have participated in Navy programs
 - ONR Summer Faculty Research Program
 - ONR Naval Research Enterprise Internship Program (NREIP)
 - Faculty-mentored undergraduate research in Mechatronics/Robotics
- University has legal agreements with the Navy: EPAs and PIAs

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Fathomwerx

- University has legal agreements with the Navy: EPAs and PIAs
- Navy and the University efforts to establish a sustained robust partnership have failed to get traction
- Summer 2024: Miller starts a sabbatical at Fathomwerx to study how the organization could build stronger connections with academia

UCF and the Tech Grove



UCF and the Tech Grove

- The Tech Grove is a cousin to Fathomwerx's Ventura Tech Bridge
- The Tech Grove (and 'Team Orlando') partner with the University of Central Florida
 - Space
 - Staff
 - Programming
- A. Jaeger: "Can we do this in Ventura County?"
- Sends Seal Team: Rob Heilman, Bill Simmons, Jason Miller

UCF and the Tech Grove

- Anecdote: Three guys walk into a VP's office...
- Representative of how difficult it is to get a University to change
- (It doesn't help that these are challenging times for CSU Channel Islands!)
- Epiphany: policy of the Academic Senate
- After much consultation, Miller proposes an applied research *Institute for Technology and Collaboration*

Institute for Technology and Collaboration

- *Goals*

- *Serve as a University clearinghouse for Navy information and opportunities*
- *Entity through which University becomes Fathomwerx's principle academic partner*
- *Provide Fathomwerx with publicly accessible space on campus for meeting, collaboration, innovation*
- *Promote multi-sector collaboration and innovation that extends Fathomwerx reach into other business sectors*

Institute for Technology and Collaboration

- *Services*
 - *Facilitating problem solving meetings between Navy stakeholders and industry solvers*
 - *Autonomy*
 - *Artificial intelligence*
 - *Cybersecurity*
 - *Smart 'cities' and broadband access*
 - *Conduit to other regional academic institutions (e.g., UCSB, SLO)*
 - *Publishing white papers promoting regional technology opportunities for growth*
 - *Supporting Fathomwerx programming*

Institute for Technology and Collaboration

- *Anecdote: Grey Flag*
 - *Annual exercise, systems between U.S. aerial and allied aerial aircraft*
 - *In 2024:*
 - *75 aircraft*
 - *3500 individuals traveling to the region to support created economic Good for the region*
 - *“hotel costs were over \$800 per night”*
- *These Navy exercises have value to the region*
 - *Demonstrate local world-class expertise*
 - *“What if those contractors opened shop here?”*

Today: Ventura Tech Bridge 2025

- ANTX-CT 2025
 - Participation of 336 organizations at 32 venues in 8 states.
- Vandenberg Space Force Base
 - The Crucible Innovation Cell
 - (future) Commercial Space Port
- Autonomous Systems
 - Ventura County Airports and Autonomy
 - Autonomous Proving Grounds



A Bridge to Build in 2025...

Leaders fear that if launches move east, so will most if not all of the R&D and production that now happens in California, creating significant economic vulnerabilities that could cripple California's current leadership share of the space industry.

U.S. Rep. Salud Carbajal (D-Central Coast), who attended the Hourglass workshop said: "We've heard from leaders in technology and space innovation, and we know what they need to thrive in California. Our state has always been on the cutting edge of technology and development—we must be sure we continue taking bold action on job creation and innovation to match. Without a doubt, the excellence of Vandenberg Air Force Base paired with the expertise of Central Coast businesses will create a thriving spaceport. We must ensure they have the resources to stay competitive. I am committed to supporting these efforts and our state's space leadership in every way I can."

August 14, 2019

Regional leaders meet to discuss Vandenberg spaceport

Paso Robles Daily News

Autonomous Proving Grounds (APG)

<https://www.diu.mil/replicator>

“The first iteration of Replicator (Replicator 1), announced in August 2023, will deliver all-domain attritable autonomous systems (ADA2) to warfighters at a **scale of multiple thousands**, across multiple warfighting domains, within 18-24 months, or by August 2025.”

Autonomous Proving Grounds (APG)

<https://www.diu.mil/replicator>

“In September 2024, Secretary of Defense Lloyd J. Austin III announced the second iteration of Replicator. Replicator 2 will tackle the warfighter priority of countering the threat posed by small uncrewed aerial systems (C-sUAS) to our most critical installations and force concentrations. Replicator 2 will assist with overcoming challenges we face in the areas of production capacity, technology innovation, authorities, policies, open system architecture and system integration, and force structure.”

ANTX/Coastal Trident 2025



Planning Phase

Concept Development Meeting	November 13, 2024
Request for Initial Project Information	November 20, 2024
Project Proposals Due	January 8, 2025
Initial Planning Meeting	January 15, 2025
Mid-term Planning Meeting	March 12, 2025
Final Planning Meeting	May 14, 2025

Execution Phase

Field Experiments and Exercises June to September

(dates will be determined by project needs, supporting resources, and technical readiness)

ANTX-Coastal Trident Technology Open House September 23-24, 2025

(in coordination with the annual FATHOMWERX Summit)



[Project Title]

Organization: [organization], [location]

Project Lead: [name], [email], [phone]

[organization logo]

Operational Need:

[describe the problem your project is proposed to address]

Project Objective:

[identify what your project is intended to achieve]

System Under Test:

Manufacturer: [manufacturer]

Nomenclature: [system name]

Description: [provide a description of the technology that is the subject of your project]

[photo of system under test]

Capabilities:

[describe the capabilities provided by the system under test]

Differentiators:

[describe the differences between the system under test and other available systems]

Project Concept of Operations:

[describe the activities that you envision to achieve your project objectives]

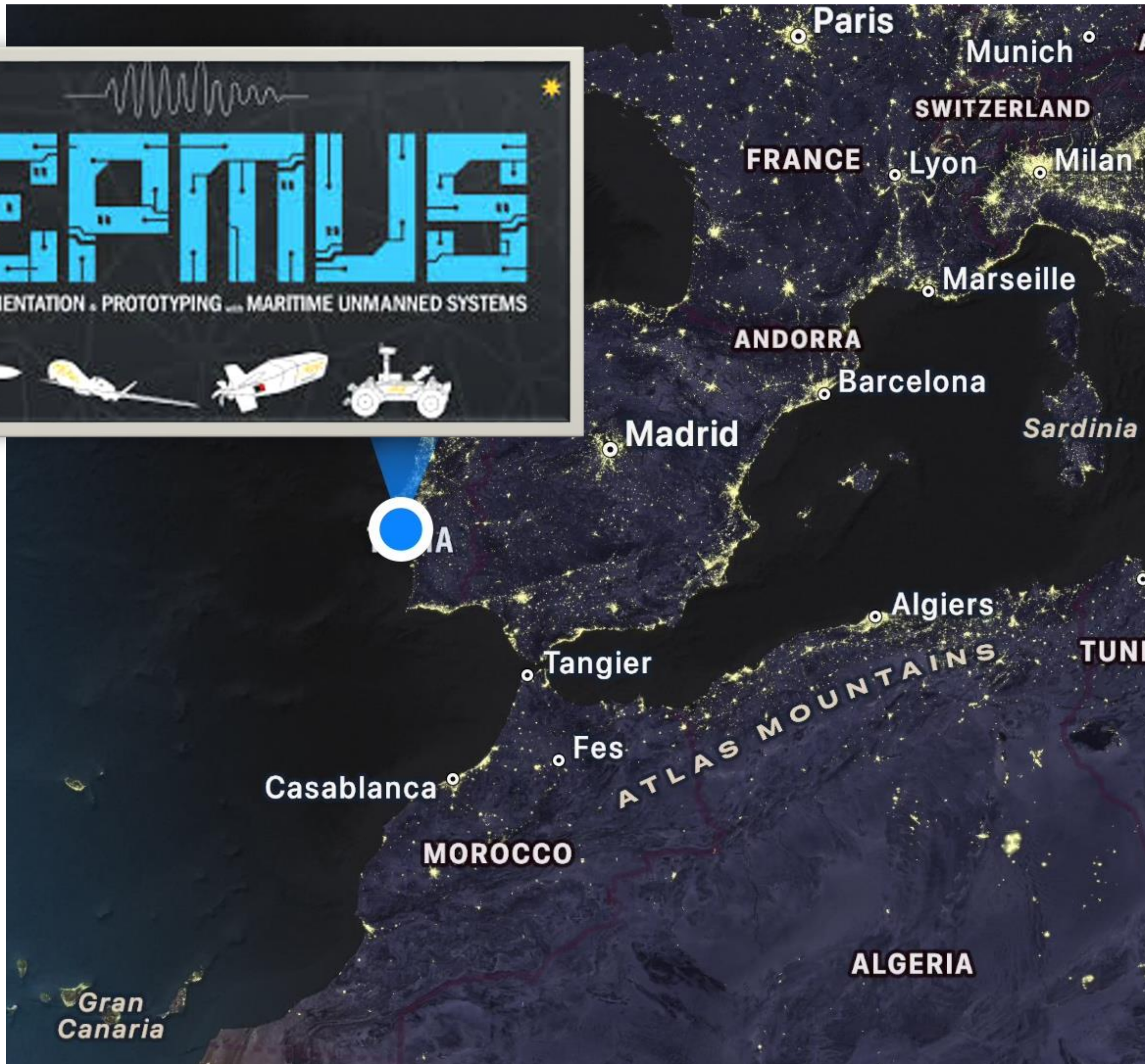
Resources:

[list the resources you would require from the planning team to support your concept]

Administrative Approvals:

- Does your system transmit RF energy (e.g., radio or radar)? [yes or no]
 - **If yes**, is it FCC licensed or approved to operate by another authority? [yes or no]
 - If yes, please provide that documentation along with your project proposal
 - If no, plan to work with the planning team to provide necessary documentation for authorization to operate, frequency management, safe operating distances
- Does your system transmit acoustic energy (e.g., sonar)? [yes or no]
 - If yes, plan to work with the planning team to obtain necessary approvals to operate in ANTX-CT25 venues
- Does your system emit laser radiation (e.g., LiDAR)? [yes or no]
 - If yes, plan to work with the planning team to obtain necessary approvals to operate in ANTX-CT25 venues
- Does your system involve operation of an unmanned aircraft? [yes or no]
 - **If yes**, is it a Program of Record or “Blue-UAS Certified?” by DIU? [yes or no]
 - **If no**, is it NDAA-compliant for component manufacture? [yes or no]
 - If yes, plan to work with the planning team to obtain necessary approvals for COTS UAS.
 - If no, your aircraft may only be operated in a counter-UAS surrogate role
- Does your system use lithium batteries? [yes or no]
 - If yes, plan to work with the planning team to obtain necessary approvals to operate in ANTX-CT25 venues

REAPNTUS
ROBOTIC EXPERIMENTATION & PROTOTYPING with MARITIME UNMANNED SYSTEMS



Technology Free Zone



PORTUGAL - Designated airspace, sea space and land areas with preexisting arrangements and agreements for certain types of approvals (FAA, FCC, etc). Then some basic infrastructure that exists that companies can easily use for short durations



Building Bridges in 2025

Measures of Success

Innovation Outcomes

- Events
- Experiments
- Exercises

Economic Development Metrics

- Participants
- Partnerships
- Projects

Questions?

