

FLWR

FLUID WIRE ROBOTICS

TAKE ROBOTS ANYWHERE



Sant'Anna
Scuola Universitaria Superiore Pisa



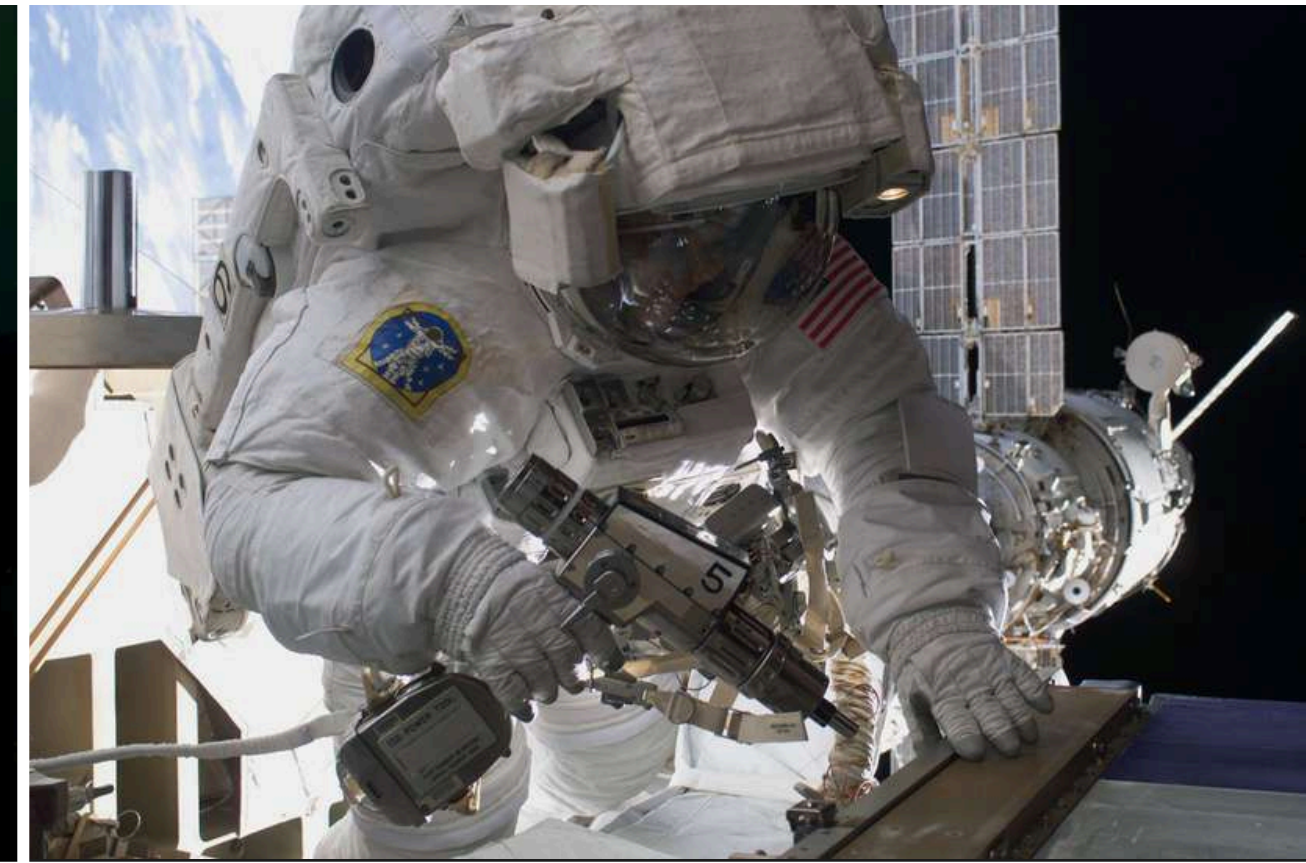
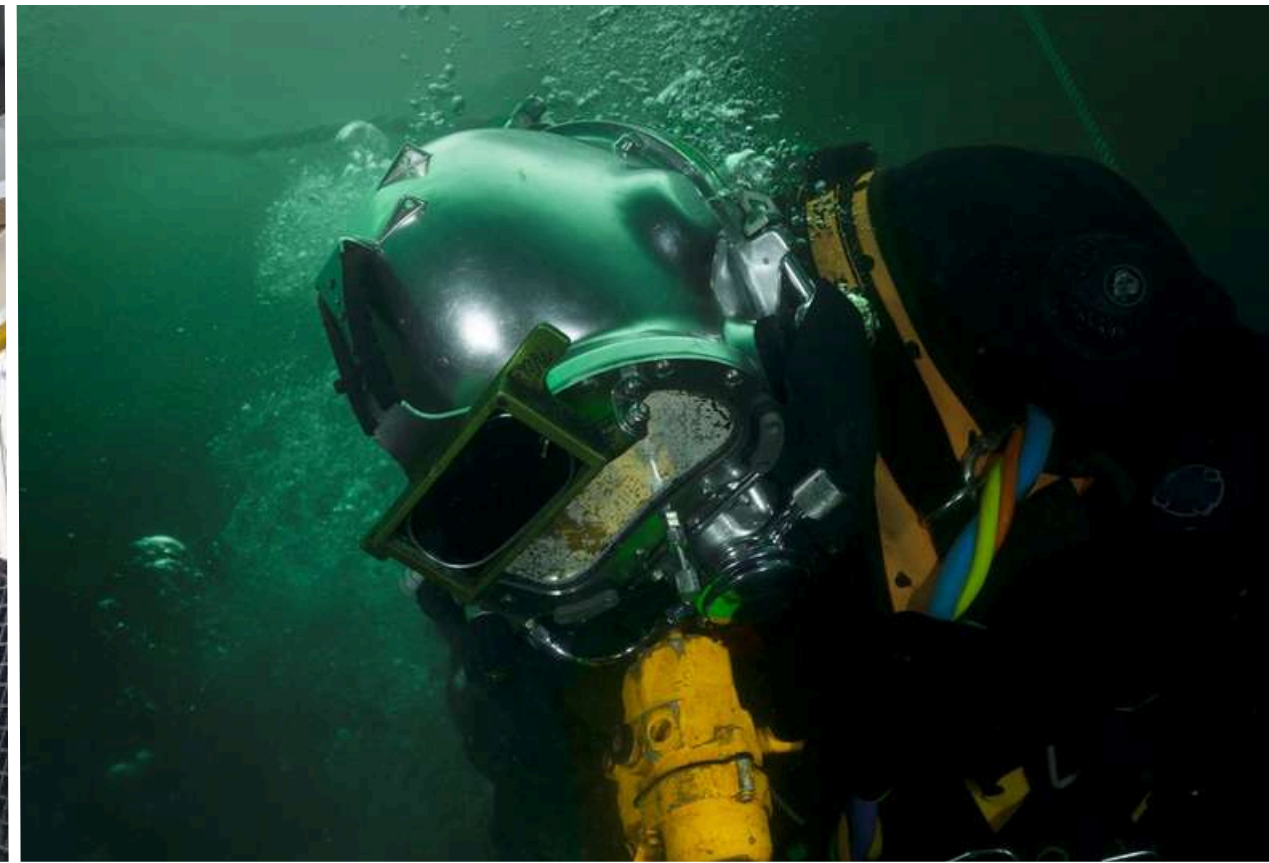
Robo*i*



sc*ientifica*



PROBLEM



TRADITIONAL DESIGN APPROACHES TO
ROBOTICS FOR HARSH ENVIRONMENTS
DO NOT SCALE



Complexity



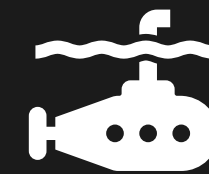
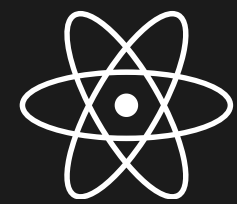
High cost



Specialization

MISSION

FWR AIMS TO DEFINE THE **NEW ROBOTICS STANDARD** FOR HARSH ENVIRONMENTS



FWR develops robots capable of delivering advanced robotic capabilities in *ANY* environmental condition, with extreme reliability, simplicity and cost-efficiency

SOLUTION

ROBOTIC ARM

Passive structure, inherently compatible with any harsh environment

EXTERNAL ACTUATION BOX

Electronics, sensors and electric motors are housed in the box

FLUID WIRES

High-quality, fluidic transmission system

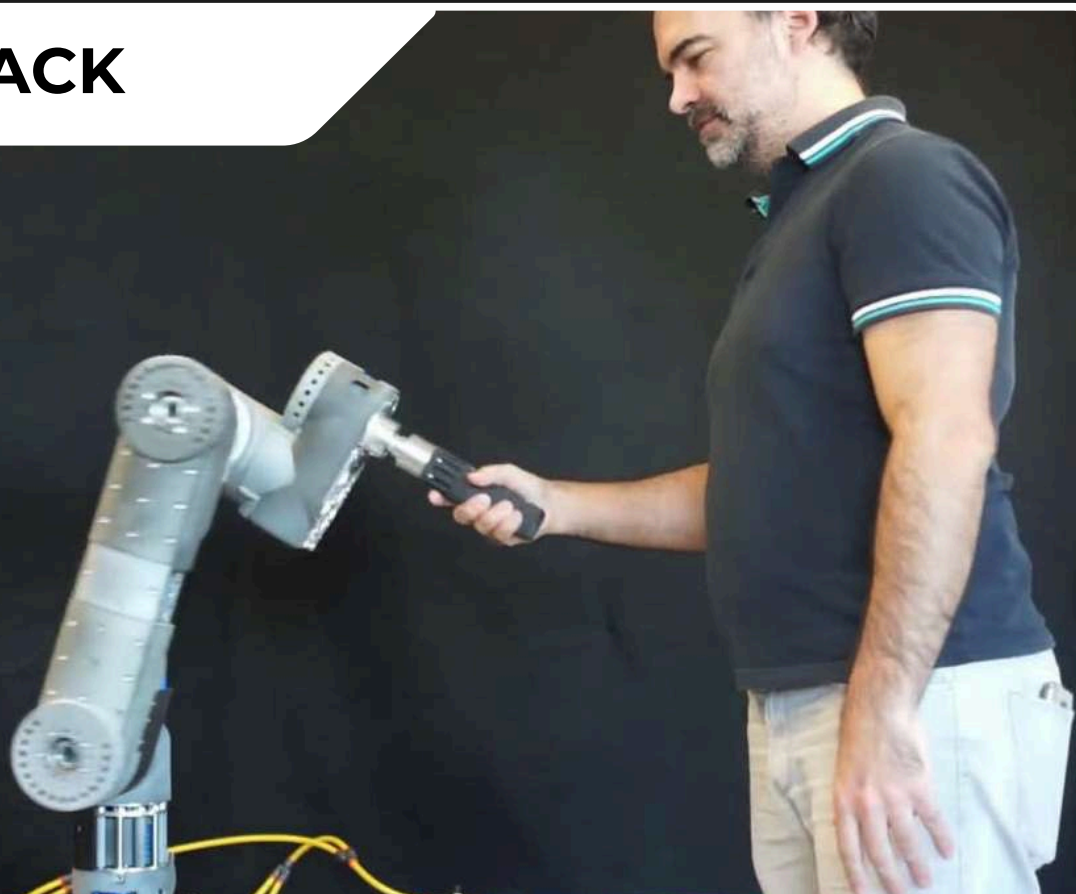
3 Patents filed



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SOLUTION

FORCE FEEDBACK

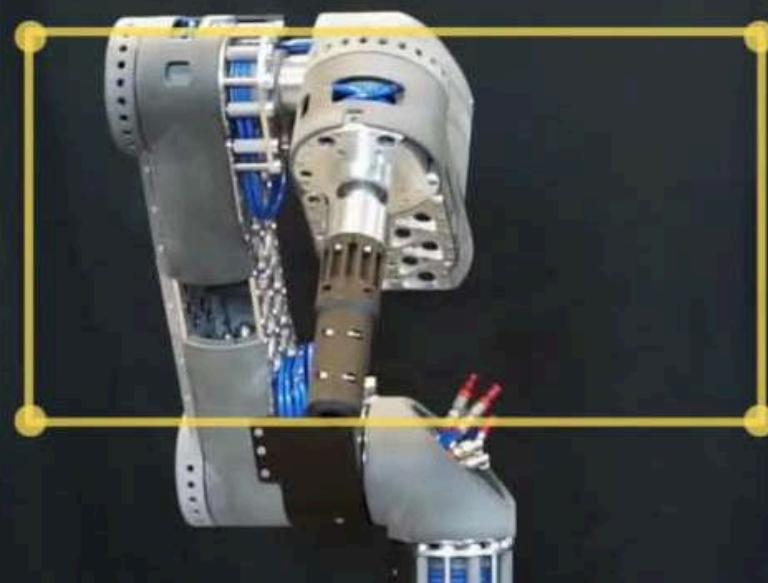


A wide range of capabilities have been demonstrated in a lab environment



the robotic arm is completely **SENSORLESS**. It neither embeds any sensors nor actuators!

ACCURATE POSITIONING



Fluid Wire Technology is the ideal platform for **advanced** and **reliable** manipulation in extreme environments. *(teleoperation mode available)*

TRL 4

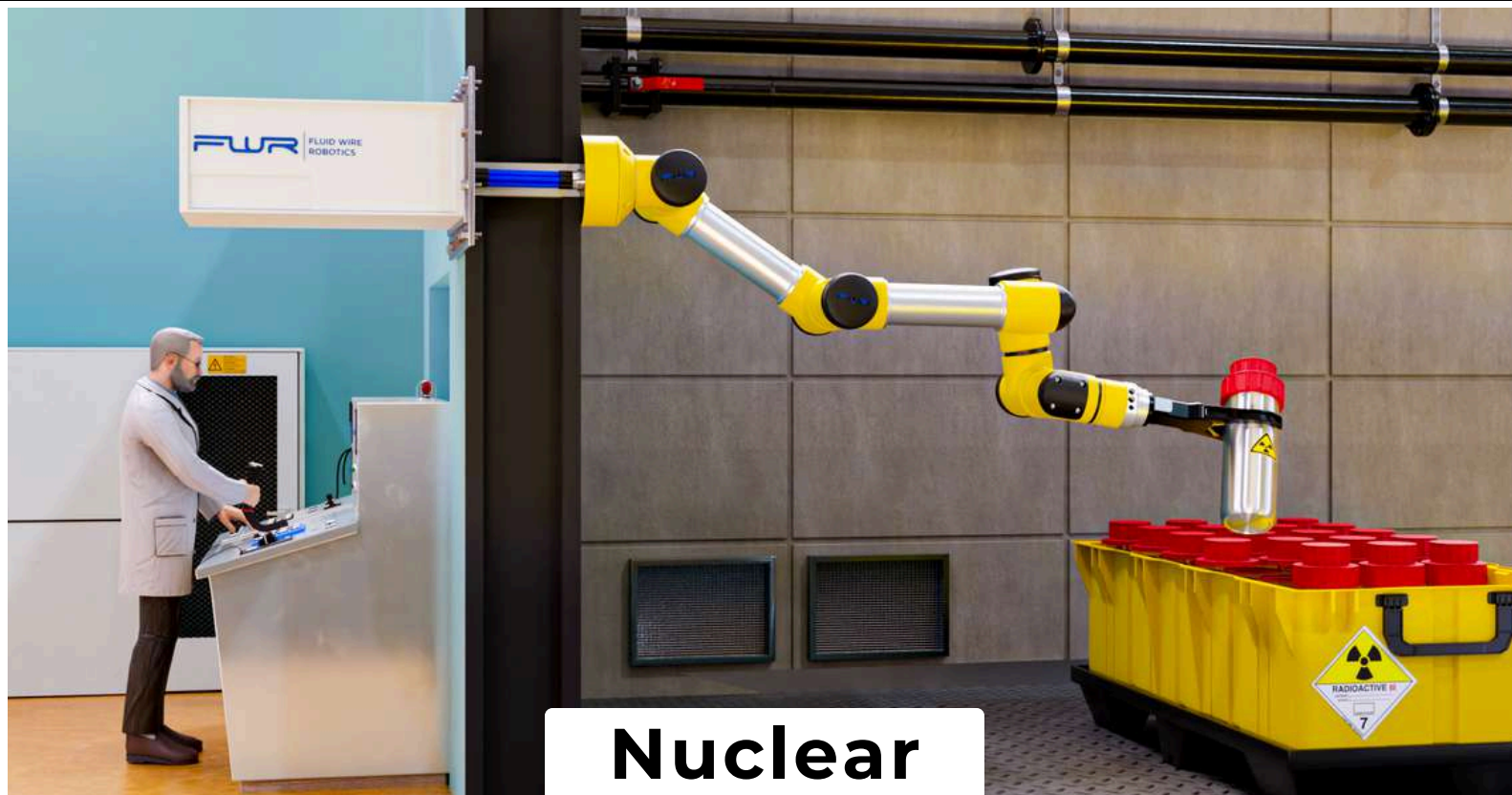


[*Click here to see the videos](#)

FWR

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MARKETS



Harsh &
Innovative
Industrial

Underwater

APPLICATIONS

- Inspection & Maintenance
- Radiative material and waste handling
- Decommissioning tasks

COMPETITIVE ADVANTAGES

- Reliability in radioactive conditions
- Slender arm ideal for accessing narrow spaces
- Modular and reconfigurable for custom needs

n.1 **LOI** <> nuclear reactor manufacturer

APPLICATIONS

- In-orbit servicing
- Active debris removal
- Collaborative/autonomous assembling

COMPETITIVE ADVANTAGES

- Lightweight & low-inertia arm
- Superior thermal dissipation >> undersizing of actuators and highly dynamic movements

n.1 **LOI** <> system integrator *(work in progress)*

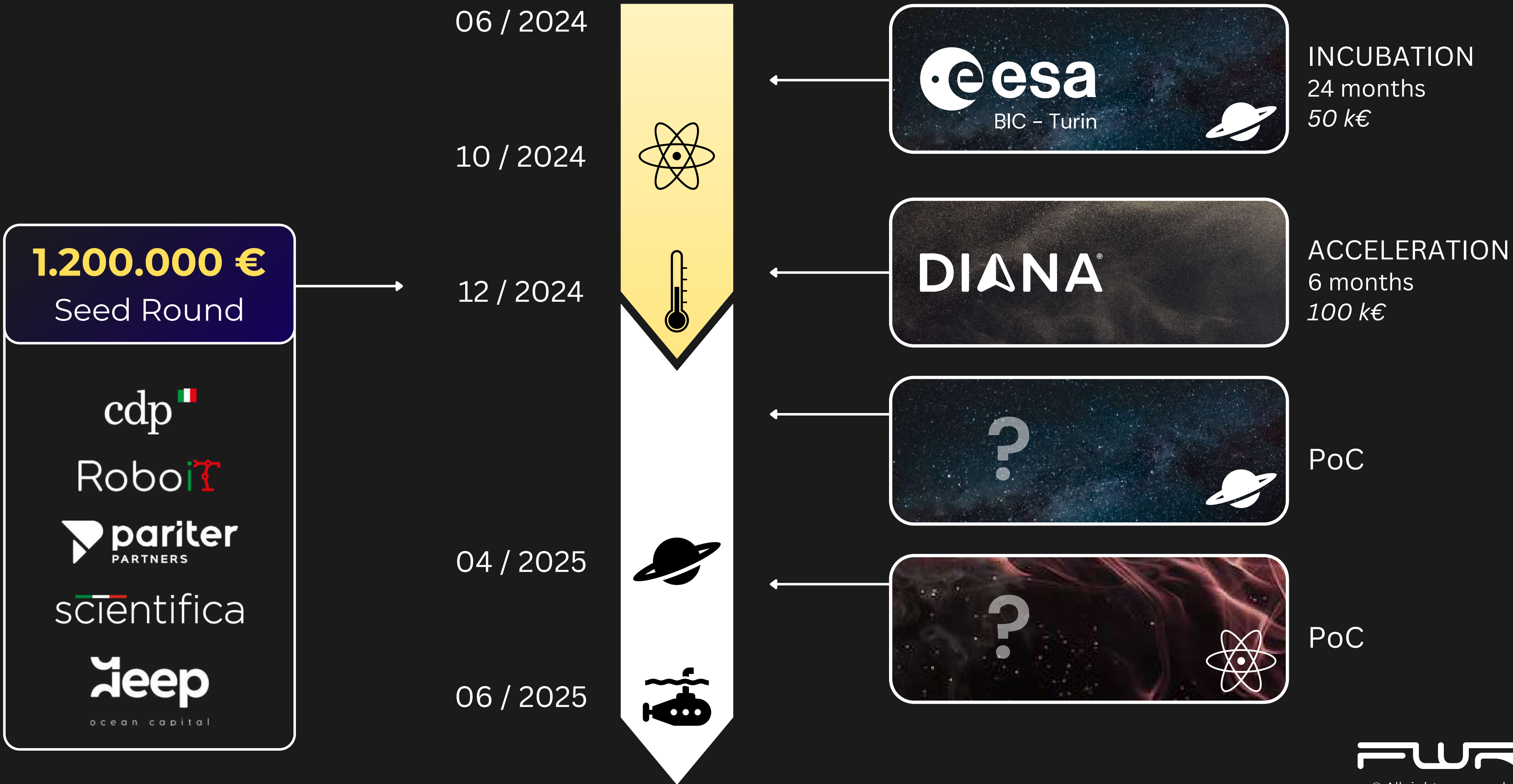
esa-BIC 24-month incubation program

APP.

- ATEX/Ex
- Portable Arms
- Mobile Platforms
- Foundry
- Shipyards
- Off-shore

n.1 **LOI** <> robot manufacturer

ROADMAP





FLWR

FLUID WIRE ROBOTICS

info@fluidwirerobotics.com



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Robo*i*



scientifica

