Snapshots of the Current Cohort

NATO DIANA

April 2024

DIANA
NATO DIANA portfolio

Purpose of the Document

- This document is intended to serve as an introductory material related to the 44 companies currently in the DIANA program.
- Each company is briefly present in a one-page factsheet, detailing key aspects such as:
  - **DIANA proposal**: The title of their submission as part of the DIANA program.
  - **Company description and technical snapshots**: Introductory aspects of the company, high-level snapshot of their solution, project or IP, as well as any other aspects they wish to disclose.
  - **Team**: High-level remarks for the team, as well as names and/or embedded LinkedIn profiles of key leadership.
  - **Challenge**: The respective challenge area for which they were selected, as described in the following slides.
  - **Accelerator**: Each company is assigned to an accelerator, external partner of DIANA, undergoing a rigorous curriculum.
  - **Base**: The HQ or main location of each of the companies. **Founded**: Start year. **TRL**: Current level, self-assessed.
  - **Revenues**: Self-declared stage for each company (pre-revenue or revenue generating, respectively from commercial (private) clients, government clients or both.
  - **Verticals**: The main technology or commercial areas in which they are developing their solution, at a high level.
  - **Target markets**: Self-declared markets, industries or general use cases for their solution or technology.
  - **Funding goals**: Companies' self-declared funding plans, at a high level (actively raising at the moment or on an immediate timeframe, aiming to raise in the coming years or not aiming to raise in the coming year).
  - **Raised thus far**: Stage of investment so far, self-declared (raised equity, grants or non-dilutive funds, both or neither). Some companies decided not to disclose this information.
  - **Links**: Embedded links to their website and LinkedIn pages, where available.
- In the top left side of each factsheet, you can find 2 buttons leading to the clover slide (page 3) or each section's cover

Disclaimer

- This document is intended for information and communication purposes of aforementioned stakeholders external of NATO DIANA and should be treated as confidential.
- This document does not represent any financial, commercial or any other type of proposal, and its contents are presented for information purposes only

DIANA
NATO DIANA portfolio

Current cohort of NATO DIANA

The program currently accelerates 44 companies from across NATO nations, developing dual use, deep tech solutions tackling three critical challenge areas

1 Energy Resilience

- AquaGen
- GaltTec
- Goldilock
- IceWind
- IONATE
- Kitepower
- McGuire Aero Propulsion
- Ore Energy
- Spacelis
- Texavie
- WPE R&D
- Zelestium Technologies
- Zepher Flight Labs

2 Secure Information Sharing

- Anzen Technology Systems
- Astrolight
- AVoptics
- Dronetag
- Ephos
- G2-Zero
- GIM Robotics
- Hushmesh
- LevelQuantum
- Neuromorphica
- Quadsat
- Qubitrium
- Revobeam
- Secqai
- VanWyn
- VistaReader

3 Sensing and Surveillance

- Aquark Technologies
- aRoboticsCompany
- Dolphin Labs
- dotOcean
- Elwave
- Grayscale AI
- Lobster Robotics
- Marine Thinking
- OWL
- Phantom Photonics
- Ping DSP
- SEADAR
- Skarv Technologies
- Sotiria Technology
- Water Linked

1 Energy Resilience

Advancing resilient microgrids with scalable, interoperable technologies for secure and efficient energy management

Companies in this section

- AquaGen
- GaltTec
- Goldilock
- IceWind
- IONATE
- Kitepower
- McGuire Aero Propulsion
- Ore Energy
- Spacelis
- Texavie
- WPE R&D
- Zelestium Technologies
- Zepher Flight Labs

Description of the Energy Resilience challenge

- The Energy Resilience Challenge within the NATO DIANA program focuses on developing advanced technology solutions to provide rapid and sustained power to critical facilities during natural disasters or crises, including conflicts.
- DIANA sought solutions which are modular, rapidly deployable, interoperable, adaptable, affordable, and resilient, capable of operating independently of pre-existing external power sources.
- The challenge emphasized the importance of micro-grid systems, efficient renewable power generation, power storage, and adaptive and intelligent power management technologies. It also highlighted the need for cybersecurity measures to protect these systems and components.
- It addressed the critical need for reliable, high-quality, and secure power in both civilian communities and national defence operations during emergencies. By promoting the development of technologies that are quickly installed, easily maintained by small teams, and operate independently of compromised infrastructure, DIANA sought to ensure self-contained power systems for emergency humanitarian teams and Forward Operating Bases (FOBs), which require steady, high-quality power that could be easily reconfigured to meet changing demands.
- DIANA aimed for disruptive capabilities in adaptive, efficient, and secure power control technologies, along with reliable, rugged, modular, scalable, and reconfigurable components and systems.
- Proposals were expected to clearly address the challenges and significantly contribute to the advancement of energy resilience solutions, characterized by genuine market innovation.

AquaGen

Low-Cost Portable River-Power

DIANA Proposal:
Barracuda Micro grid Portable Water Power

Company description and technical snapshots

- AquaGen aims to supply electricity to a wide range of stakeholders, such as NATO Forward Operating Bases, integrated digital soldiers, emergency humanitarian teams
- Barracuda to offer the best power density solution in the field (most W/Kg), delivering 100kWh per day (2m/s). (Barracuda system supplies: Electricity, Irrigation, or Clean Drinking Water)
- It is lightweight, portable, rapidly deployable, ruggedized, affordable.

Team:

- Multidisciplinary and highly experienced team, some being leading figures in their respective industries.
- Key leadership team:
  - Mac Brown, CEO
  - Derek Neufeld, CTO
  - Dr. Eric Bibeau: VP of Technology

Key facts

Challenge	Energy Resilience
Accelerator	PNW MAC (Seattle, USA)
Base	Canada
Founded	2020
TRL	7
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Hydropower
Target market(s)	Govt. agencies, Emergency Response
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

GaltTec

The New Age of Portable Fuel Cells

DIANA Proposal:
Portable and Modular Solid Oxide Fuel Cells

Company description and technical snapshots

- Tartu-based start-up creating fuel cells with high power density for drones, off-grid equipment, IoT, portable devices, and space equipment.
- Galtec's fuel cells are based on proprietary technology with unmatched performance.
- Claims power output from 1 W to 1 kW and key advantages which include long use time, fuel independence, mechanical durability, and weather resistance.
- High interest from drone, IoT and space clients.
- STARTUp Day 2024 (Estonia), top 5 in pitching competition.

Team:

- Glen Kelp, PhD, Co-Founder and CEO, experience in physics, microfabrication
- Laura Elise Arvisto, MSc, Co-Founder and VP of Sales, experience in materials research
- Tanel Tätte, PhD, Co-Founder and CTO, experience in materials chemistry
- Joonas Hint, Lead engineer, experience in product development

Key facts

Challenge	Energy Resilience
Accelerator	Tehnopol (Tallinn, EE)
Base	Estonia
Founded	2022
TRL	4
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Energy Storage
Target market(s)	Unmanned vehicles, off-grid sensors, space
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

Goldilock

The Cyber Kill-Switch: Non-IP controlled Remote Physical Segmentation

DIANA Proposal:
Drawbridge: Ultimate Cyber Resilience for the Grid

Company description and technical snapshots

- Developed a new, multi-patented cybersecurity tool for protecting critical assets and data.
- By physically segmenting digital assets and networks without using the internet, Goldilock ensures networks and assets remain secure, invisible, and inaccessible to adversaries, remotely connecting to the internet or other network segments only when necessary or by being physically isolated instantly, *the kill-switch*.
- R&D and production at University of Wolverhampton Science Park.
- Used by Ukrainian CyberCommand (4 devices to date), two UK MoD contracts, major UK water and energy utilities, PoCs in US, EU and Singapore in CNI and defence.
- Winner of KPMG's Tech Innovator competition, Hardware Endpoint Device of the Year (Technology Reseller) and the Most Innovative Cyber Security Product (Real Cyber).

Team:

- Founders are serial entrepreneurs, served in the Canadian military:
  - Stephen Kines, Co-Founder
  - Tony Hasek, Co-Founder
  - Peter Lenk PhD, NATO Lead
  - Richard Bate, CTO

Key facts

Challenge	Energy Resilience
Accelerator	Technopol (Tallin, EE)
Base	UK
Founded	2021; US launch 2024
TRL	5-6
Revenues	Revenue Commercial only
Verticals	Cyber
Target market(s)	Energy, Water, CNI, Defence, IT – Data Centres, Banking
Funding goals	Planning to raise within 12 months
Raised thus far	Both equity and non-dilutive
Links	

IceWind

Extreme Power Solutions for Austere and Remote Environments

DIANA Proposal:
Arctic SkIPP – Quick & Rugged Deployable Microgrid

Company description and technical snapshots

- Aim to be the first military grade, portable & deployable microgrid *combining* hurricane rated wind turbines, solar, and energy storage.
- Three patented designs that manufactures micro vertical-axis wind turbine solutions for decentralized power generation for remote, underserved, and extreme environments.
- Key awards: Horizon 2020 (EU), US Air Force SBIR PI 2021, US Air Force AFWERX 2021, multiple Icelandic govt. (Rannis) grants.

Team:

- Stephen Drake, CEO, Ph.D., Mechanical Eng., focus on thermal characterization of Li-ion energy storage
- Saethor Asgeirsson, Founder & CTO,: M.Sc., Mechanical Eng. with extensive experience in hydro-ship systems
- Adams Ponnis, CDO, Lead designer at IceWind

Key facts

Challenge	Energy Resilience
Accelerator	Technopol (Tallin, EE)
Base	Iceland
Founded	2012
TRL	6
Revenues	Pre-revenue
Verticals	Alt Energy Equipment Wind Power, EaaS
Target market(s)	Telecom, Defence, Weather Data, Marine Navigation
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

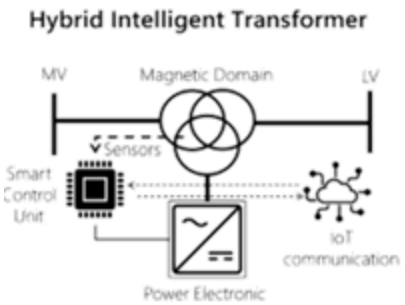
IONATE

Deep tech innovation for grid-scale power flow control

DIANA Proposal:
Hybrid Transformers for Real-time Power Control

Company description and technical snapshots

- Hardware innovation is designed to transform legacy grids into future-proof electricity systems.
- Their Hybrid Intelligent Transformer (HIT) is a cutting-edge power-flow control device, that replaces a basic grid building block – the transformer- with a device that also monitors and controls the sinusoidal AC-waveform with millisecond precision
- This ensures continuous control of voltage levels and power conditioning, higher energy efficiency & longer asset lifetimes for both HITs & connected assets, simpler maintenance of fewer assets.
- IONATE's tech leverages magnetics for control in an innovative way, by combining reliability of a transformer with dynamics of power electronics, offering a solution that is more cost effective and reliable.



Team:

- Matthew Williams, Founder CEO
- Luca Mezossy-Dona, Co-Founder, Head of Strategic Eng.
- Roberto Ricci, Co-Founder, CFO

Key facts

Challenge	Energy Resilience
Accelerator	Mass Challenge (Boston, US)
Base	London, UK
Founded	2019
TRL	5
Revenues	Revenue Commercial only
Verticals	Electrical equipment Energy transformation
Target market(s)	Energy Energy infrastructure
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

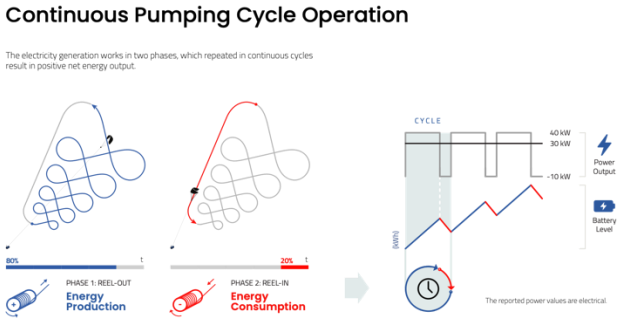
Kitepower

Clean, independent & cost-effective alternative to portable diesel generators

DIANA Proposal:
Kite4BESS – Kite-powered Battery Energy Storage

Company description and technical snapshots

- A spinoff from Delft University of Technology, pioneering the field of airborne wind energy systems (AWES) with the first renewable energy solution that is also portable, by combining Battery Energy Storage Systems (BESS) with a kite for in-situ charging
- Harvesting wind energy at higher altitudes (>350 meters) using kites with future technology potential to cut utility-scale wind energy cost in half, through a reduction of materials usage by at least 80%.
- 300+ successful flights across 5 locations and demonstrated with target customers. Supported by EU, RWE, UN WfP, Dutch MoD.



Team:

- Leadership team:
  - Johannes Peschel, CEO and Co-Founder
  - Walter Hueber, COO
  - Eduard Ijsselmuiden, Head of Product

Key facts

Challenge	Energy Resilience
Accelerator	Takeoff (Turin, Italy)
Base	Delft, Netherlands
Founded	2016
TRL	5-6
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Wind Power
Target market(s)	Civil Engineering, Agriculture and Island Communities
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

McGuire Aero Propulsion Solutions (MAPS)

Net-Zero on-site power generation

DIANA Proposal:
Novel Micro-Turbine for Resilient Microgrids

Company description and technical snapshots

- Innovating in sustainable energy with its net-zero micro-power-plant (MPP), designed for commercial and industrial use.
- This 'microgrid-in-a-box' offers high electrical efficiency and fuel flexibility, ensuring operational resiliency and emissions reduction.
- The modular MPP eliminates grid dependency, adaptable for various locations from industrial centres to remote areas.

Team:

- A diverse team of World class aerospace and manufacturing engineers, with decades of industry engineering experience and management expertise at large multinational corporations, such as Pratt & Whitney, Air Canada, Bombardier, Ellison Surface, Rolls-Royce. Key team:
  - Daniel McGuire: CEO, P.Eng, M.Eng.
  - Pierre Chenard: COO, P.Eng, MBA
  - Paul McGuire: CFO

Key facts

Challenge	Energy Resilience
Accelerator	Mass Challenge (Boston, US)
Base	Canada
Founded	2015
TRL	4
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Power Generation
Target market(s)	Power Generation
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

Ore Energy

Long duration energy storage to make renewables available at all time

DIANA Proposal:
Ultra-low Cost, Fully Scalable, Easily Deployable Long-Duration Energy Storage solution, Based on Iron, Water and Air

Company description and technical snapshots

- Amsterdam-based start-up working on new generation long-duration energy storage solutions.
- Battery with very abundant materials, essentially: iron, water and air. Zero critical material. Low cost. Excellent recyclability.
- Long duration solution (100 hours), able to manage on multi-days the intermittency of renewable energies.
- Tractions with large electrical utilities, notably Electricité de France (EDF) the largest elec. utility in EU and Budget Energy in NL.
- Final product: a 10 MWh 20-foot container, plug & play, scalable.
- Prototype was validated in lab settings and looking to test on-site before end of 2024.

Team:

22 highly motivated experts. Key management team:

- Dr. Aytaç Yilmaz, CEO, PhD
- Dr. Yaiza Gonzalez, CSO, Professor, TU Delft
- Rutil Ozdemir, COO
- Maxime Guymard, CFO/CCO

Key facts

Challenge	Energy Resilience
Accelerator	Takeoff (Turin, Italy)
Base	Amsterdam, Netherlands
Founded	2022
TRL	4
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Energy Storage
Target market(s)	Electrical utilities, renewable developers.
Funding goals	No plans to raise within 12 months
Raised thus far	Both equity and non-dilutive
Links	

Spacelis

Next Generation Flexible Light-weight Solar Technologies for Space and Defence

DIANA Proposal:
Rollable Ultra-Light Weight Flexible Solar Panels

Company description and technical snapshots

- Printed organic solar cells with applications in a wide range of environments and design. Through their inherent flexibility and ultra-lightweight nature, stemming from organic materials, they contrast with conventional rigid silicon systems.
- Their solar cells aim to be the world's first ultra lightweight and radiation stable plastic solar cells that can be produced in space for Moon and Mars missions and on Earth's harsh environments .
- The cells can assist in energy security and resilience in military operations due to easy installation, transportation and maintenance of lightweight solar power.
- Target clients range from satellite companies, space agencies to the defence institutions, energy and defence innovation companies, and users seeking energy security, light-weight design, and mobility.

Team:

- Guler Kocak, Founder & CEO, PhD Chemistry
- Ismail Topcam, Senior Software Engineer, Machine Learning
- Idil Buse Kok Hazer, Lawyer
- Aytulu Sert, Aeorospace Engineer, MBA
- Feride Eylul Ozkul

Key facts

Challenge	Energy Resilience
Accelerator	Mass Challenge (Boston, US)
Base	Ankara, Turkey
Founded	2023
TRL	4
Revenues	Pre-revenue
Verticals	Energy Infrastructure, Solar Power
Target market(s)	Renewable Energy, Defence and Aerospace
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

Texavie

Solar textile for renewable energy anywhere

DIANA Proposal:
Lightweight, Flexible and Durable Solar Textile

Company description and technical snapshots

- Award-winning startup leading in advanced smart textile and apparel technology and products for energy, defence and health applications
- Solar textile technology known as Natural Energy Autonomous Textile (NEAT) SolarTex.
- Lightweight, flexible textile generating electricity from sunlight.
- Provides 4-10x W/kg in comparison to silicon panels, can have up to 8-16% power efficiency, and charge different types of batteries for storage of energy, 5x reduction in needed battery weight and cost, 10 tonnes/m2 reduction in CO_2 emissions
- Can be added to the surface of helmets, backpacks, vests, UAVs or tents to reduce the needed weight of the batteries.
- Awards from Merck KGaA, Canadian Space Agency (CSA), Canadian National Defence IDEaS program, featured in Nature etc.

Team:

- 20 focused and motivated members, across key functions:
  - Dr Peyman Servati, CEO, 20 years in electronic materials, Waterloo, Cambridge, Stanford, prior successful start-up
  - Dr Harishkumar Narayana, Lead of Textile
  - Dr Saeid Soltanian, Manufacturing Lead
  - Carly Nakayama, Product Design Lead

Key facts

Challenge	Energy Resilience
Accelerator	PNW MAC (Seattle, USA)
Base	Canada
Founded	2015
TRL	5
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Solar Power
Target market(s)	Commercial, Defence
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

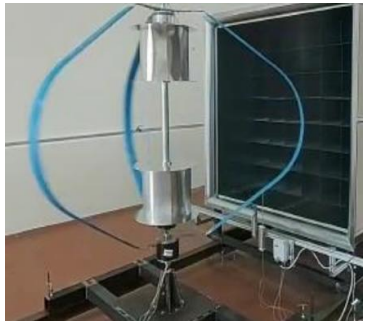
WPE Research & Development

Elevate your energy independency with a compact micro-wind turbine

DIANA Proposal:
Wind Power in a Box

Company description and technical snapshots

- In collaboration with the CNR and the University of Trento, WPE focuses on the development of vertical micro wind turbines.
- EOS Turbowind has patented aerodynamic elements, independent electronic control and an adaptive system to optimize power curves in all wind conditions.
- Designed to be easily transportable and durable in extreme weather conditions, integrable into microgrids and storage systems.
- Advanced integrated system that combines energy production and additional services.
- Design based on containers makes the system easily transportable and ready for use, improving energy efficiency & monitoring capabilities in military operational scenarios.



Team:

- Interdisciplinary team, with a strong technical team specialized in physics, mechanics, electromechanics, electronics, and computer science, a business and finance team managed by professionals with backgrounds in start-ups, corporate strategies, tax consulting.

Key facts

Challenge	Energy Resilience
Accelerator	Takeoff (Turin, Italy)
Base	Padova, Italy
Founded	2019
TRL	6
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Wind Power
Target market(s)	Industrial Defence
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

Zelestium Technologies

Clean energy to drive change

DIANA Proposal:
Aluminium Batteries for Stationary Applications

Company description and technical snapshots

- Developed an aluminum-ion rechargeable battery that can be advantageously used for energy storage in stationary applications.
- This technology are reliable, have better performance and their temperature operation range is wider than other solutions.
- With over 6,000 cycles at full discharge, these batteries outperform traditional options, which typically provide only 1,000 to 2,000 cycles.
- They are manufactured with sustainable materials only, fully avoiding the use of heavy metals or rare materials.
- This disruptive technology has already been successfully tested.

Team:

- Leading team in the field, key members:
  - Joaquín Chacón (CEO), PhD Elecgtrochemistry and 34 years in the battery industry
  - Paloma Almodóvar (Chief Research Officer), PhD Physics, in the top 40 of women in battery science

Key facts

Challenge	Energy Resilience
Accelerator	Takeoff (Turin, Italy)
Base	Spain
Founded	2018
TRL	5
Revenues	Pre-revenue
Verticals	Alternative Energy Equipment Energy Storage
Target market(s)	Stationary batteries Renewable energy
Funding goals	Planning to start raising within 12 months
Raised thus far	Non-dilutive
Links	

Zepher Flight Labs

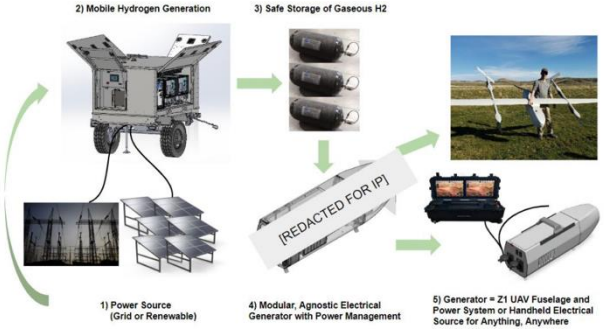
Resilient. Scalable. Renewable.

DIANA Proposal:

Hydrogen-Electricity for Resilient Scalable Power

Company description and technical snapshots

- Zepher Flight Labs is a UAS development and manufacturing firm focused on creating a family of manufacturable, user-friendly and sustainable autonomous vehicles for large-volume operations.
- Created a modular, open architecture for rapid deployment, rapid refuelling, rapid configuration changes, and repair.
- Hydrogen utilized for segment-leading UAV performance, resulting in standalone hydrogen technologies useful in energy markets.



Team:

- Veteran industry experts purposely assembled for a new approach to technology development and market penetration.
  - Adam Stolz, CEO & President, former U.S. DOD
  - Jake Allen, Chief Engineer, Industry Veteran
  - Jaime Mack, Executive Board Member

Key facts

Challenge	Energy Resilience
Accelerator	PNW MAC (Seattle, USA)
Base	USA
Founded	2019
TRL	6-7
Revenues	Revenue Government only
Verticals	Robotics and Drones Aerial Autonomy
Target market(s)	UAV, H2 Tech, Energy
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

2 Secure Information Sharing

Seeking to enable secure, real-time data exchange across networks for enhanced communication in critical environments

Companies in this section

- Anzen Technology Systems
- Astrolight
- AVoptics
- Dronetag
- Ephos
- G2-Zero
- GIM Robotics
- Hushmesh
- LevelQuantum
- Neuromorphica
- Quadsat
- Qubitrium
- Revobeam
- Secqai
- VanWyn
- VistaReader

Description of the Secure Information Sharing challenge

- The Secure Information Sharing Challenge aims to address the critical need for the trusted exchange of information across organizational boundaries using zero-trust principles.
- The prompt emphasized the importance of ensuring the Confidentiality, Integrity, and Availability (CIA triad) of streaming data in a world increasingly reliant on real-time digital communication across mediums, incl. video, audio, and text.
- DIANA sought innovative software and hardware solutions capable of providing CIA for dynamic streaming data, with a focus on trust across unsecured networks and the veracity of data throughout its lifecycle. The challenge highlighted the necessity for data-centric security techniques, quantum-safe encryption for streaming data, and federated text, voice, and video chat solutions that protect user privacy against third-party discovery.
- Solutions were expected to support highly distributed and resilient IT and technology architectures, drawing from advancements in various commercial industries. DIANA was interested in disruptive capabilities in confidentiality, ensuring data access only by authorized users; integrity, verifying data origin and accuracy; and availability, ensuring data resilience against system failures and malicious activities.
- DIANA aimed to balance a portfolio of extremely disruptive solutions at varying technology readiness levels, contributing significantly to the advancement of secure information sharing solutions characterized by market innovation.

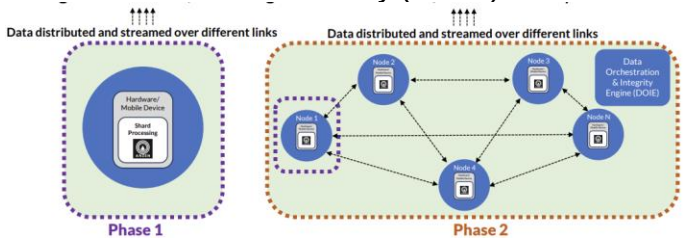
Anzen Technology Systems

Post-quantum safe data security and sovereignty

DIANA Proposal:
Post-Quantum Security with Data Fragmentation

Company description and technical snapshots

- Developing user-friendly, patented post-quantum security technology with seamless integration. This can safeguard sensitive or classified data and future-proof information security and data sovereignty.
- Software application anonymizes data of any format and structure, then splits it into N fragments which may be distributed and stored in multiple locations, mitigating risks from adversaries
- Technology IP at several TRL levels: data at-rest/storage (TRL 8), real-time database transactions (TRL 5), edge and IOT data in environments where with low or no connectivity (TRL 4).



Team:

- The team have a successful track record of delivering technically challenging projects for the UK MOD, UKRI and Data Security by Design Consortium. Key members:
  - Hoon Li, CEO
  - Charlie Brown, CTO.
  - Prof. Achim Brucker, Tech & Security Advisor

Key facts

Challenge	Secure Information Sharing
Accelerator	Tehnopol (Tallinn, EE)
Base	UK
Founded	2018
TRL	4 (edge data), 5 (real time data), 8 (storage data)
Revenues	Revenue Government only
Verticals	Data Security, Cloud Security
Target market(s)	Defence & Govt, Healthcare, Financial Services
Funding goals	Actively raising USD 3M over the next 6 months
Raised thus far	Both equity and non-dilutive
Links	

Astrolight

Laser communication for space and defence

DIANA Proposal:
Nextgen LASERCOM

Company description and technical snapshots

- Develops next generation un-jammable and undetectable, high bandwidth laser communication solutions for naval and aerospace.
- Their advances in the opto-mechanical design and vertical integration approach has enabled the reduction of size, complexity and cost of both space and ground laser communication systems.
- Proprietary beam steering system design in which optical power can be increased without loss of beam quality, resulting in higher data throughput and smaller hardware size.

Figure 1. Astrolight portable laser com terminal for satellites

Figure 2. Astrolight 2 µm infrared laser com prototype terminal during pilto flight testing

Team:

- Laurynas Mačiulis, CEO & co-founder, ex-founder of Nanoavionics, exited to Kongsberg Aerospace
- Dalius Petrulionis, CTO & co-founder

Key facts

Challenge	Secure Information Sharing
Accelerator	Deep Tech Lab (Copenhagen, DK)
Base	Vilnius, Lithuania
Founded	2019
TRL	5
Revenues	Revenue Source(s) not provided
Verticals	Space Technology, Telecommunications
Target market(s)	Aerospace, Defence
Funding goals	2M EUR seed round by Q2 2024
Raised thus far	Both equity and non-dilutive
Links	

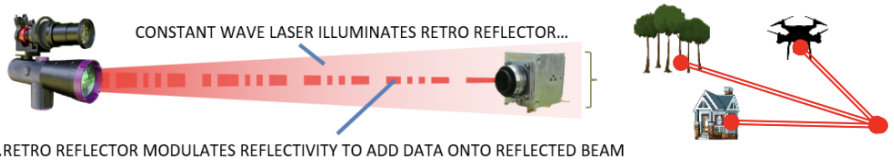
AVoptics

Low Size, Weight and Power Covert Optical Communications for small assets

DIANA Proposal:
High Speed Modulated Retro Reflector Optical Comms

Company description and technical snapshots

- Producing fibre optic, photonic, electrical and electronic solutions for harsh environments, including aerospace and defence
- Using an MRR (Modulated Retro Reflector) optical comms system greatly simplifies one end of a link, leading to lower SWaP (Size, Weight and Power) assets to communicate at high speed covertly
- Current development: up to 5 km range, maintaining link alignment between moving assets, bidirectional comms, data rates of tens to hundreds of MB/s. Optical transmitters are GoPro-camera sized, power consumption:1-10 W, relaxed optical alignment conditions.
- Current engagements with RAF Air Command, Leonardo and DSTL.



Team:

- Ex-BAE Systems and Leonardo staff including key players in demonstrating multiple free-space optical communication systems:
  - Andrew Lee, Managing Director
  - Malcolm Watson, Research Lead

Key facts

Challenge	Secure Information Sharing
Accelerator	Tehnopol (Tallin, EE)
Base	UK
Founded	2005
TRL	4
Revenues	Revenue Commercial only
Verticals	Electrical Equipment Photonics Products
Target market(s)	Aerospace, Defence
Funding goals	No plans to raise within 12 months
Raised thus far	*not provided*
Links	

Dronetag

Striving for digitally visible drones

DIANA Proposal:
Dronetag Electronic Warfare Suite (EWS)

Company description and technical snapshots

- Develops next generation un-jammable and undetectable solution for safe and efficient drone traffic management.
- Provide remote identification solutions for commercial drones, aiding drone pilots in meeting Remote ID regulations in US, EU, Japan.
- The suite of hw and sw solutions act as a unified telemetry layer, facilitating comprehensive fleet management for enterprise drone fleet managers.
- They aim to expand their solutions to cater to the demands of defence markets, focused on developing advanced solutions for managing drones around critical infrastructure.
- They aim to white-label friendly drones for battlefield conditions, enhancing situational awareness for military operations.

Team:

- Dronetag boasts a dedicated team of over 40 seasoned professionals, including:
  - Lukas Brchl, CEO, MSc, AI, 10+ years in the drone sector.
  - Tomáš Beneš, Hardware Lead, PhD in Hardware Design
  - Marián Hlaváč, CTO: Marián, MSc in Software

Key facts

Challenge	Secure Information Sharing
Accelerator	Technopol (Tallin, EE)
Base	Czech Republic
Founded	2018
TRL	7
Revenues	Revenue Commercial only
Verticals	Robotics and Drones Airspace Management
Target market(s)	Commercial and Defense Drone Markets
Funding goals	Actively raising
Raised thus far	Both equity and non-dilutive
Links	

Ephos

Where quantum is built

DIANA Proposal:
Accelerating QKD Deployment Via FLW Circuits

Company description and technical snapshots

- Building essential infrastructure for quantum technologies
- Manufactures high-fidelity photonic chips that power the most advanced modular quantum architectures.
- Design and build of photonic quantum chips in-house, controlling the process from materials procurement through benchmarking.
- Leveraging pioneering femtosecond laser writing (FLW) techniques to inscribe waveguides in glass, creating the highest fidelity quantum chips available.

Team:

- Andrea Rocchetto: quantum computing researcher, UT Austin, University of Oxford, Imperial College
- Roberto Osellame: pioneered the use of the FLW chip fabrication tech in quantum computing; 380+ publications,
- Giacomo Corrielli: photonic researcher, Politecnico di Milano

Key facts

Challenge	Secure Information Sharing
Accelerator	Mass Challenge (Boston, US)
Base	Italy
Founded	2022
TRL	6
Revenues	Revenue Commercial only
Verticals	Advanced Manufacturing Quantum Hardware
Target market(s)	Quantum technologies
Funding goals	Planning to start raising within12 months
Raised thus far	Seed round
Links	

G2-Zero

Plug&Play Quantum Devices

DIANA Proposal:
Up-scaling Single Photon Sources for QKD

Company description and technical snapshots

- Spin-off of the Institute of Micro and Nanotechnology of the National Spanish Research Council (IMN-CSIC) and the Technical University of Madrid (UPM).
- Focuses on developing single photon sources with a novel patented design which makes them purely electrically driven, vibration-resistant, ultra-compact and alignment-free.
- The unique design allows scalable production using standard III-V semiconductor technology at the wafer level.
- Aims to bring to the research quantum communication's market a true plug&play single-photon source that you can set and forget.

Team:

- International team of junior and senior research engineers and physicists brings significant expertise as scientists, professors and advisors in nanotechnology and adjacent fields.
  - Jose M. Ulloa, Co-Founder, Professor at Universidad Politécnica de Madrid
  - Jose M. Llorens, Co-Founder, Researcher at Instituto de Micro y Nanotechnologia CSIC, Madrid
  - Benito Alen, Co-Founder, Researcher at Instituto de Micro y Nanotechnologia CSIC, Madrid

Key facts

Challenge	Secure Information Sharing
Accelerator	Deep Tech Lab (Copenhagen, DK)
Base	Madrid, Spain
Founded	December 2020
TRL	3
Revenues	Pre-revenue
Verticals	Advanced Manufacturing Quantum Hardware
Target market(s)	R&D, QKD, Quantum Computing
Funding goals	No plans to raise within 12 months
Raised thus far	Raised funding, sources not provided
Links	

GIM Robotics

GNSS-denied positioning for armoured vehicles

DIANA Proposal:
GNSS-Denied Positioning

Company description and technical snapshots

- GIM Robotics develops a sensor fusion solution, claimed to be 5 times cheaper than traditional military-grade solutions enabling safe blue force tracking and red zone detection.
- Initiated a strategic agreement with an industry prime and sold a first solution to the Finnish Defence Forces Rapid Deployment forces with a continuous testing and development agreement.
- Top 100 Deep tech AI companies in Finland nominated by TESI, official EDF Famous 2 consortium subcontractor
- Founding member of Finnish Digital Defence Ecosystem.

Team:

- Team of 42 engineers based in Finland focusing on positioning and perception system development.
  - Tatu Lyytinen, Experienced business developer.
  - Seppo Heikkilä, PhD in Automation engineering with ESA and CERN background.
  - Janne Paanajärvi, MSc in Computer science.
  - Antti Sippola, MSc in Automation and Control Engineering.

Key facts

Challenge	Secure Information Sharing
Accelerator	Technopol (Tallin, EE)
Base	Finland
Founded	2014
TRL	7
Revenues	Revenue Commercial and government
Verticals	Positioning, Navigation and Timing (PNT) sensor fusion
Target market(s)	Armoured vehicles in defence and security domains
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

Hushmesh

The Mesh is the new Web

DIANA Proposal:
Automating Global Pairwise Cryptographic Security

Company description and technical snapshots

- Public benefit cybersecurity start-up developing and operating the "Mesh", a global information space like the Web, but with automated cryptographic security and Universal Zero Trust built-in.
- Built on the Universal Name System (UNS) and Universal Certificate Authority (UCA), it automates global pairwise cryptographic security between any two person and non-person entities, across the internet, with no human insider
- It aims to deliver global assurance of provenance, integrity, authenticity, reputation, confidentiality, and privacy for all bits within it, be they code or data, to eliminate identity theft, breaches, fakes etc., at internet scale.
- Partnership with AMI towards securing the firmware supply chain.

Team:

- Team with extensive internet technology and product development experience. Cpre team has collaborated closely for 20+ years.
  - Manu Fontaine, Founder and CEO
  - Neil Cohen, CTO
  - Michelle Vargo, Head of Products
  - Jim Bramson, Advisor

Key facts

Challenge	Secure Information Sharing
Accelerator	Mass Challenge (Boston, US)
Base	Northern Virginia, USA
Founded	2017
TRL	7
Revenues	Pre-revenue
Verticals	Cybersecurity
Target market(s)	Supply chain security
Funding goals	No plans to raise within 12 months
Raised thus far	Equity
Links	

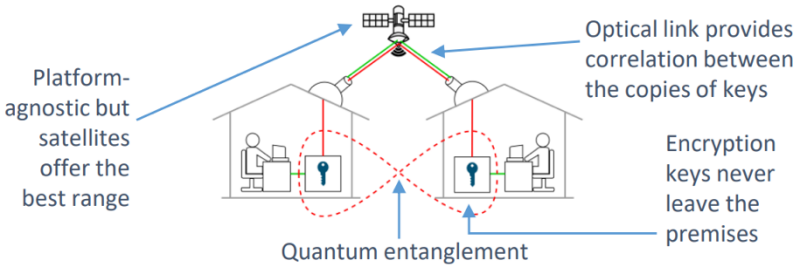
levelQuantum

Unconditional security enabled by quantum physics

DIANA Proposal:
Quantum-Based Unconditional Security for Streaming

Company description and technical snapshots

- Milan-based start-up offering cybersecurity protocols based on optical quantum communications.
- Industry leading developers of Quantum Key Distribution protocol compatible with off-the-shelf quantum photonic hardware ensuring complete protection of information transfer.
- Early cooperation established with Telespazio, Thales Alenia Space Italy, Leonardo, Banca d'Italia.



Team:

- Prof. Dr. Magdalena Stobinska, CEO, Professor of Quantum Information
- Dr. Adam Buraczewski, CTO, PhD in Computer Science
- Giulio Busulini, Strategic Business Advisor, former Tech Counsellor of Italy in Washington DC
- Riccardo Arpe, Chief Quantum Engineer

Key facts

Challenge	Secure Information Sharing
Accelerator	Takeoff (Turin, Italy)
Base	Italy
Founded	2022
TRL	3
Revenues	Pre-revenue
Verticals	Network Management Software Cybersecurity
Target market(s)	Critical Infrastructure and Defence
Funding goals	Actively raising
Raised thus far	Raised, sources not provided
Links	

Neuromorphica

Make knowledge replicable

DIANA Proposal:
RISC-V Based SoC with SDR and AI Modules

Company description and technical snapshots

- Designs a security hardened system-on-chip delivering IP protection and flexible multi-band communication in environments with dense electronic warfare against adversaries with advanced capabilities
- Neuromorphic AI for ultra energy efficient sensor data processing at the edge, enabling large networks for autonomous UAVs (on air, land, water or underwater), smart munitions, other next-gen systems.

Team:

- Ianislav Trendafilov, PhD student in AI, M.Sc. in Electronics, MBA, ex-VMware, 23 years of experience, 3 patents
- Dimitar Nikolov, Associate Professor, PhD in Microelectronics, MBA student, TU-Sofia, 22 years of experience
- Anton Puliyski, PhD student in Aviation, 3xMasters, 19 years of experience
- Dentcho Bankov, M.Sc. In Physics, 27 years of experience

Key facts

Challenge	Secure Information Sharing
Accelerator	Takeoff (Turin, Italy)
Base	Bulgaria
Founded	2021
TRL	4
Revenues	Pre-revenue
Verticals	Electrical equipment Energy transformation
Target market(s)	Edge AI, AIoT, Secure communications
Funding goals	Planning to start raising within12 months
Raised thus far	Non-dilutive
Links	

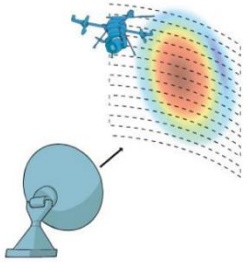
Quadsat

Optimizing and Securing the World's Radio Spectrum

DIANA Proposal:
Securing Radio Spectrum On Location

Company description and technical snapshots

- Provides Next Generation Outdoor RF Measurement Range using airborne measurement equipment.
- Uses drones as stand-ins for satellites to test and calibrate antennas on the ground. Enables in-situ performance optimization of antennas.
- Key market segment is SATCOM and migrating towards defence.



Team:

- Joakim Espeland, CEO & Co-founder
- Andrian Buchi, Co-founder
- Lars Bach, CTO - Product development
- Rasmus Hasle, PhD, R&D director
- Rami Othman, PhD DSP specialist
- Christian Rex, Operations Manager

Key facts

Challenge	Secure Information Sharing
Accelerator	PNW MAC (Seattle, USA)
Base	Denmark
Founded	2016
TRL	7
Revenues	Revenue Commercial only
Verticals	Wireless Comm. Equipment Airborne Antenna Testing
Target market(s)	SATCOM, Antenna manufactures, Defence
Funding goals	Planning to start raising within12 months
Raised thus far	*not provided*
Links	

Qubitrium

The most secure, communication links through Quantum Key Distribution modules

DIANA Proposal:
Quantum Key Distribution Network via CubeSat

Company description and technical snapshots

- Developing ground based QKD systems and providing solutions for secure and reliable communication via satellites for cryptographic key distributing nodes.
- The team aims to develop a nano-satellite based Quantum Key Distribution (QKD) solution, providing high confidentiality rooted in principles of quantum mechanics and quantum entanglement.
- Qubitrium aims to provide entanglement based miniaturized turn-key satellite payloads and to provide services in order to deliver quantum technologies to industrial organizations.

Team:

- Kadir Durak, Founder, Professor in Physics
- İlke Akbulut, CTO
- Alper Özülker, R&D Team Lead
- Muhammed İzçınar, R&D Engineer
- Murat Alparslan İhtiyar, Mechanical Design Engineer

Key facts

Challenge	Secure Information Sharing
Accelerator	Deep Tech Lab (Copenhagen, DK)
Base	Istanbul, Türkiye
Founded	2020
TRL	4
Revenues	Revenue Commercial and government
Verticals	Advanced and satellite manufacturing, Quantum HW
Target market(s)	Defense, Aerospace, Space, Telecomm, Banking
Funding goals	Actively raising
Raised thus far	*not provided*
Links	

REVOBEAM

Revobeam

Democratizing access to secure and reliable communications

DIANA Proposal:
Low-Cost Energy Efficient Anti-Jamming Antenna

Company description and technical snapshots

- Deep-tech company with academic roots, developing smart antennas for unmanned platforms and IoT devices.
- Developing electronically steerable smart antennas can mitigate jamming attacks and extend range in wireless comm. systems.
- The solution is lighter, more efficient, and less expensive than any other product on the market. In addition, it can be easily integrated with most of existing communication modules.
- Current client is a system integrator operating in the Polish defence market and they have already established collaboration with key UAV's manufacturers in Poland and with Polish PGZ Naval Shipyard.

Team:

- 5 skilled R&D engineers - specialists in antenna design, hardware engineering, DSP, mechatronics and UAV/UGV/USV development
  - Mateusz Rzymowski, CEO
  - Lukasz Kulas, CTO

Key facts

Challenge	Secure Information Sharing
Accelerator	Tehnopol (Tallin, EE)
Base	Gdansk, Poland
Founded	2023
TRL	5
Revenues	Revenue Commercial
Verticals	IoT and UAV
Target market(s)	Defence, critical infrastructure and healtcare
Funding goals	No pans to raise within 12 months
Raised thus far	Non-dilutive
Links	

SECQAI

Securing communications from the data centre to the edge

DIANA Proposal:
System on Chip for In-Device Post Quantum Cryptography

Company description and technical snapshots

- A mission-driven, UK company, building a secure System on Chip, with post quantum cryptography and quantum random number Generation.
- Their solution aims to safely and efficiently run your models and software in device with memory safe technology. PQC SOC enabled by SECQAI's proprietary Quantum Random Number Generation.
- It also aims Encrypt comms to a Post Quantum level, in line with your requirements (FIPS 140-3 or custom).

Team:

- Rahul Tyagi, CEO and Founder, patent holder
- Graham Harris, CFO, ex-Microsoft Xbox, Pearson
- Angus Lockhart, COO
- Andrew Nicol, Hardware Engineering Lead, ex-Google X
- Alaeddine Jendoubi, Quantum Photonics Hardware
- Pavlos Aidinidis, Analogue Hardware
- Anas Alsakkal, Low-power Hardware

Key facts

Challenge	Secure Information Sharing
Accelerator	Deep Tech Lab (Copenhagen, DK)
Base	UK
Founded	2021
TRL	4
Revenues	Pre-revenue
Verticals	Cyber Security Secure Hardware
Target market(s)	Defence IOT, CNI IOT Across the US, UK & EU
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

VanWyn

A radio that won't give away soldier position

DIANA Proposal:
NARROWAVE Undetectable Radio Comms

Company description and technical snapshots

- Patent-pending for NARROWAVE, with applications in multiple industries. NARROWAVE provides a thin tunnel of signal in which frequency can be increased, providing the backbone infrastructure for 6G etc.
- Aims to finalize prototype and be market-ready by 2027 – 2028 for applications in defence, civilian government, and industry.
- Applications in Cybersecurity, as radio transmitter undetectable by enemies or competitors because the signal is non-existent outside of the narrow beam path.
- Ongoing partnerships with Purdue, McMaster, Concordia, and Toronto Metropolitan Universities.

Team:

- Erinn van Wynsberghe, CEO
- CFO: Sanjay Dhir, CFO
- Dan Woolley, Advisor

Key facts

Challenge	Secure Information Sharing
Accelerator	Mass Challenge (Boston, US)
Base	Canada
Founded	2015
TRL	3
Revenues	Revenue Government only
Verticals	Coms, Space, Aerospace, Wireless Power Transfer
Target market(s)	Defence covert radios, industry backbone for 6G
Funding goals	Planning to raise within 12 months
Raised thus far	Non-dilutive
Links	

VistaReader

Bring autonomy to missions with drone-enabled heads-up system

DIANA Proposal:
Heads-Up Display for Combat Situational Awareness

Company description and technical snapshots

- Developing the Use Vision To Think precision display, a visual investigation and situational awareness technology
- Their heads-up display aims to offer real time battle video capture using custom drones, AI & GPS assisted human-led mapping and secure and encrypted transmission to fighting unit on the ground.
- They aim to address military or civilian peace keeping force demands, including special forces and policy and advisory decision-making stakeholders.
- They aim to differentiate their solution by blending direction of fire and friendly vs. enemy forces mini-map features akin to computer gaming, alongside a simple to use heads-up display, enabled by video data secured transmission via close support.

Team:

- A diverse, Lithuanian, Swedish and Ukrainian team, with 2 full time Principal Engineers, 10 part time PhDs as advisers
- Field team: 1 Colonel, 1 Major, 1 Lieutenant, 1 Sergeant Major
- Custom Hardware Production & Factory Assembly in Kiev, UA

Key facts

Challenge	Secure Information Sharing
Accelerator	Mass Challenge (Boston, US)
Base	Lithuania
Founded	2022
TRL	5
Revenues	Pre-revenue
Verticals	SW radios, Mesh networking, Drones, IVAS, ISR
Target market(s)	Infantry, Special forces. First responders
Funding goals	Actively raising
Raised thus far	Raised, sources not provided
Links	*not provided*

3 Sensing and Surveillance

Revolutionizing undersea awareness with advanced sensing for comprehensive coastal zone monitoring and security

Companies in this section

- Aquark Technologies
- aRoboticsCompany
- Dolphin Labs
- dotOcean
- Elwave
- Grayscale AI
- Lobster Robotics
- Marine Thinking
- OWL
- Phantom Photonics
- Ping DSP
- SEADAR
- Skarv Technologies
- Sotiria Technology
- Water Linked

Description of the Sensing and Surveillance challenge

- The challenge specifically focused on sensing the coastal undersea environment, was launched by DIANA to enhance monitoring capabilities in subsurface coastal zones.
- This challenge aimed to significantly extend the spatial scales, persistence, and feature diversity of undersea environment monitoring, addressing the limited understanding of these critical zones due to the physical limitations of signal propagation in water and the complexity of operating in the subsurface domain.
- DIANA sought disruptive capabilities in sensing technologies for persistent monitoring of harbour-scale zones, aiming to improve seabed characterization, undersea structure inspection, and detection of mobile objects. This included advanced sensing technologies – including acoustic, optical, gravimetric, magnetic, or others – to support applications such as incursion detection, subsurface infrastructure inspection, marine ecosystem monitoring, and assessing the effects of extreme weather events.
- The challenge recognized the need for innovative data collection to support marine environment characterization.
- Companies needed to offer novel methods or technologies for the exploitation of undersea sensing data, aiming for a holistic picture of the undersea coastal environment through high-quality situational awareness and data fusion.
- By promoting advances in undersea sensing and communications, the program aimed to enable new capabilities or system constructs that address civilian, economic, societal, and defence needs, contributing significantly to the advancement of sensing and surveillance solutions in the marine environment.

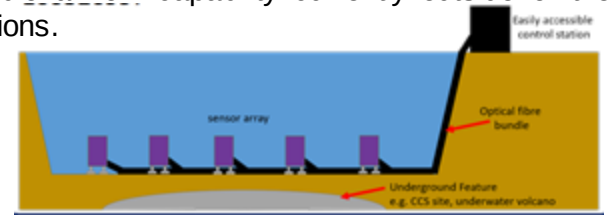
Aquark Technologies

Where Matter Makes Waves

DIANA Proposal:
QUGALS – Quantum Gravity Array for Long-term Surveillance

Company description and technical snapshots

- Pioneering cold matter quantum technology, with a focus on improving the size, weight, power, cost and robustness of quantum systems based on cold matter for high performance sensing.
- Developing quantum sensors for measuring time and gravity for deployment in real world applications.
- The gravity array system that is sitting at the core of QUGALS, utilises multiple gravity sensor heads for continuous monitoring of gravity signatures along coastal lines and has opportunity in secondary markets, i.e. underground monitoring and gravity imaging.
- As gravitational forces carry through all material, shielding is not possible. Aquark enable a new capability currently outside of the reach of existing solutions.



- Runner-up of the UK IOP QubiG prize 2023.

Team:

- Andrei Dragomir, PhD, CEO, inventor of Aquark's core tech
- Alex Jantzen, PhD, COO, ex- deep tech start-up

Key facts

Challenge	Sensing and Surveillance
Accelerator	Deep Tech Lab (Copenhagen, DK)
Base	UK
Founded	2021
TRL	3
Revenues	Revenue Government only
Verticals	Advanced Manufacturing Quantum Hardware
Target market(s)	Coastal and underground monitoring, Carbon Capture
Funding goals	Actively raising
Raised thus far	Equity
Links	

aRoboticsCompany

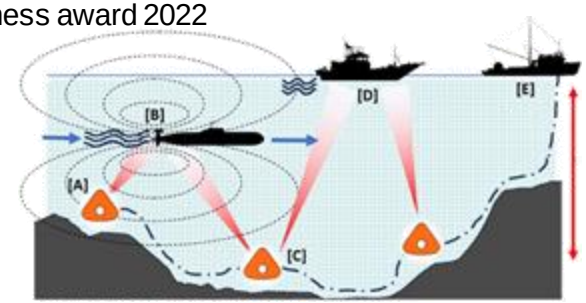
Envision, create, ascend

DIANA Proposal:

MADnet: High Resolution Localization and Detection of Undersea Anomalies

Company description and technical snapshots

- aRoboticsCompany specializes in the design, manufacture, and operation of advanced robotic systems for the maintenance of significant structures such as skyscrapers, historical buildings, and defence assets.
- Proposes a variant of its Detect-R robot modified for the seabed to locate and track natural and manmade moving objects.
- Patents for robotics solutions and completed work on structures including the Empire State Building, the Yale University campus, One Grand Central Place, and the Mount Sinai Hospital System.
- Won NYC Department of Buildings Challenge 2020 and the Propel by MIPIM Stronger Business award 2022



Team:

- Akaash Kancharla, CEO
- Jack Norleans, COO
- Kevin Quimbo, CPO

Key facts

Challenge	Sensing and Surveillance
Accelerator	Mass Challenge (Boston, US)
Base	USA
Founded	2020
TRL	7
Revenues	Revenue Commercial and government
Verticals	Robotics and AI, Proptech, Computer Vision
Target market(s)	Defense, Property Owners, Engineering Firms
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

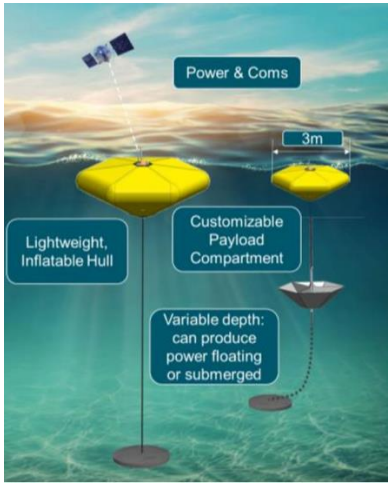
Dolphin Labs

Persistent, Renewable Power Wherever Ocean Waves Are In Motion

DIANA Proposal:
Autonomous Submerged or Floating Wave Energy Conversion to Enable Persistent Power, Sensing, Communications in Remote Marine Environments

Company description and technical snapshots

- The patented Dolphin Labs xNodeTM is a renewable ocean wave energy platform that can easily be deployed anywhere offshore to host and provide power and communications to a wide array of undersea applications.
- xNode delivers 100 – 1000 W (10-100x the power of a solar buoy) in a submerged or floating configuration, making it a reliable source of clean energy for marine ISR.
- Awarded the Nautilus Grand Prize in NOAA-DOE Ocean Observing Competition in 2020.
- 2022: the core tech was proven in 10-month sea trial, with 99% uptime, weathering 2x, 10-year storms.



Team:

- Rolle Hogan, MBA, CEO
- Michael Kelly, Ph.D, CTO
- Chris Rauch, P.E., CPO

Key facts

Challenge	Sensing and Surveillance
Accelerator	PNW MAC (Seattle, USA)
Base	USA
Founded	2022
TRL	3
Revenues	Pre-revenue
Verticals	Maritime Domain Awareness
Target market(s)	Defence, Port Security, Energy, Climate Science
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

dotOcean

Cloud robotic software for autonomous vessels and maritime situational awareness

DIANA Proposal:
Opportunity Sensing Above and Below Water for Detecting Threats and ISR

Company description and technical snapshots

- Located in Bruges, team of 30 people, working for marine contractors, port authorities, offshore renewable market and defence.
- dotOcean is a cloud robotics software company offering
  - Software solutions for autonomous vessel control and autonomous fleet and swarm control.
  - Situational awareness software to support autonomous navigation and security applications.
  - User friendly GUI interfaces for C2 and management of the fleet and security monitoring.

Team:

- Strong team of 30 professionals and top engineers
  - Koen Geirnaert, CEO, MBA, MSc
  - Sebastien Deprez, COO, MSc
  - Peter Staelens, CTO, PhD
  - Walter Driesen, BD management, MSc
  - Emma Claeys, BD manager
  - Chris Desomer, Product Development R&D manager

Key facts

Challenge	Sensing and Surveillance
Accelerator	Take-off (Turin, Italy)
Base	Bruges, Belgium
Founded	2008
TRL	4
Revenues	Revenue Commercial and government
Verticals	Robotics and Drones Autonomous Navigation
Target market(s)	Offshore oil & gas, Offshore renewables, Defence, Ports
Funding goals	No plans to raise within 12 months
Raised thus far	Equity and non-dilutive
Links	

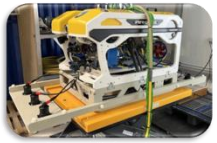
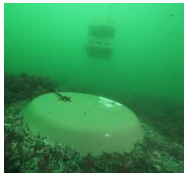
Elwave

Breakthrough electromagnetics perception

DIANA Proposal:
OCTOPULSE, Bio-Inspired Electromagnetic Sensor

Company description and technical snapshots

- The first company to produces compact biomimetics electric-field based sensor to equip subsea robots for the detection of any metallic and non-metallic objects, living and non-living for :
  - 360° detection, navigation capabilities. Seabed mapping (UXO, mine, cable/pipeline detection and characterization)
  - Oceanographic and scientific applications (archaeology, deep sea minerals, geophysics etc.)

Team:

- Pierre Tuffigo, CEO and founder, ex-DGA & Thales
- Gary Bagot
- Stephane Belot
- Paul Villard

Key facts

Challenge	Sensing and Surveillance
Accelerator	Takeoff (Turin, Italy)
Base	France
Founded	2018
TRL	6
Revenues	Revenue Commercial
Verticals	Robotics & navigation Detection, classification, ID
Target market(s)	Energy, defence Oceanographic tech
Funding goals	Planning to raise within 12 months
Raised thus far	Equity and non-dilutive
Links	

Greyscale AI

AI platform for ultra-energy-efficient AI using neuromorphic computing.

DIANA Proposal:
Event-Based Mapping Using Neuromorphic Computing

Company description and technical snapshots

- Passive sensing and positioning system running in real-time, at the edge, on static or mobile platforms.
- Part of AI platform for energy-efficient AI design and deployment (horizontal MLOps infra).
- Core technology is neuromorphic AI, allowing up to 10,000x more energy efficiency compared to existing computing architectures, microsecond detection times, pixel-level change detection, robust to denied and contested environments, low-SWaP
- Won xTechDetect competition, US Army.
- VC-backed by Techstars (Knoxville, TN)
- Won a UK gov grant to be the first in the UK to test neuromorphic vision on testbeds.

Team:

- Dragos Stanciu – founder, neuromorphic AI PhD dropout University of Edinburgh / ETH Zurich.

Key facts

Challenge	Sensing and Surveillance
Accelerator	Mass Challenge (Boston, US)
Base	London, UK
Founded	2020
TRL	6
Revenues	*not provided*
Verticals	Robotics and Drones Neuromorphic Vision
Target market(s)	Aerospace & Defense, Supply Chain, Automotive
Funding goals	Planning to raise within 12 months
Raised thus far	Raised, sources not provided
Links	

Lobster Robotics

The seabed on your screen in 4K

DIANA Proposal:
Robotic Photogrammetry for Detailed Seabed Intel

Company description and technical snapshots

- Provides high-resolution, millimetre-scale 2D and 3D seabed maps for maritime construction and defence sectors, enhancing subsea asset and hazard assessment.
- Solution superior to sonar in resolution, more cost-effective and safer compared to remotely operated devices or divers.
- Developing autonomous underwater robots, equipped with advanced cameras, to produce georeferenced seabed maps.
- Capable of mapping 1000m²/hour, robots uniquely operate effectively in currents up to 4 knots and in low visibility (down to 2m).
- Performed extensive testing in the North Sea.
- Defining paid pilots with partners such as Allseas, Boskalis, Van Oord, others.

Team:

- Founded by 6 TU Delft graduates with specializations in Systems & Control, AI, Microelectronics, High Tech, and Marine Technology.
- Alumni of YES!Delft, PortXL and Go Energize 2023 accelerators.

Key facts

Challenge	Sensing and Surveillance
Accelerator	Tehnopol (Tallin, EE)
Base	Delft, Netherlands
Founded	2021
TRL	6
Revenues	Pre-revenue
Verticals	Robotics and Drones Maritime Mapping
Target market(s)	Offshore wind, dredging,
Funding goals	Planning to start raising within 12 months
Raised thus far	Non-dilutive
Links	

Marine Thinking

Automate your vessel, simplify your work

DIANA Proposal:
AI-Powered USV Platform for Underwater Surveillance & Mapping

Company description and technical snapshots

- An autonomous technology company specialized in converting traditional vessels into autonomous vessels for duel uses.
- Their process involves seamlessly integrating our control and communication systems onto traditional vessels. This advanced system incorporates cutting edge technologies including autopilot, AI-powered object detection & avoidance, multi-tiered comm, edge AI computing, and seamless interoperability.
- Aim to empower traditional vessels with the intelligence and adaptability to excel in autonomous operations while maintaining their original functionality.
- Government agencies have been core client base, they are seeing growing adoption from industry users including wastewater facilities and ports.

Team:

- Wenwen Pei, M.A.Sc. M.Eng, CEO
- Shiwei Liu, M.Sc. CTO, M.Sc in computer science
- Dr. Frank Cui, AI
- Govinda Jagdeo, PMP, Operation Manager

Key facts

Challenge	Sensing and Surveillance
Accelerator	Mass Challenge (Boston, US)
Base	Canada
Founded	2018
TRL	5
Revenues	Revenue Commercial and government
Verticals	Robotics and Drones Robotic Systems
Target market(s)	Defence
Funding goals	Planning to raise within 12 months
Raised thus far	Equity and non-dilutive
Links	

OWL

Empowering resilience through connectivity

DIANA Proposal:
Underwater Low Cost, Simple, and Adaptable Sensor and Communications Networks

Company description and technical snapshots

- Advancing underwater sensing technologies, focusing on ruggedized coastal DuckLinks, ocean health sensor integration, and acoustic modem development for robust underwater surveillance.
- Pioneering communication networks via DuckLinks and OWL DMS for enhanced situational awareness in challenging environments like natural disasters and remote operations.
- Offering a low-cost, customizable communication and sensing network, easily deployable and designed to adapt for both terrestrial & underwater scenarios, incl. hybrid offline-online mesh networking.
- Won competitive grants and contracts, with recurring funding from USAF AFWERX programs and a collaborative approach to Open-Source technology with the Linux Foundation .

Team:

- Bryan Knouse, CEO,
- Timo Wielink, Head Of Product
- Taraqur Rahman, Head of Data
- Jaqueline Sorg, Operations
- Charlie Evans, Software Architect

Key facts

Challenge	Sensing and Surveillance
Accelerator	Mass Challenge (Boston, US)
Base	USA
Founded	2018
TRL	6
Revenues	Revenue Government only
Verticals	Wireless Comm Equipment Internet of Things
Target market(s)	Oil & Gas, Defence, Space, Disaster Relief
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

Ping DSP

Where Bathymetry Meets 3D Imagery

DIANA Proposal:
3D Lidar-Like Underwater Acoustic Visualization

Company description and technical snapshots

- Innovative sonar technology for underwater mapping and exploration; balancing research, engineering, and customer relationships.
- A ground-breaking sonar that provides extended range coherent side scan, IHO Exclusive Order swath bathymetry, and stunning 3D point clouds.
- Their technology is developed in-house and ranges from high-resolution 3D point clouds to coherent side scan and swath bathymetry, offering ground-breaking, affordable solutions for detailed underwater imaging and mapping.
- The proposal aims to provide spatial resolutions that meet or exceed the most advanced 2D imaging MCM sonars but does so in all three dimensions instead of only two

Team:

- Diverse technical and business expertise
  - Paul Kraeutner, Founder and Visionary
  - Kurtis Newman, Electrical Engineer
  - Patrick Tarlit, Mechanical Engineer
  - James Moss, Hydrographic Business Director
  - Torsten Schulz, Digital Marketing Manager

Key facts

Challenge	Sensing and Surveillance
Accelerator	PNW MAC (Seattle, USA)
Base	Canada
Founded	2015
TRL	1
Revenues	Revenue Source(s) not provided
Verticals	Hydrography 3D/2D Side Scan Sonar
Target market(s)	Hydrographic Survey Underwater search/detection
Funding goals	Seeking development contract
Raised thus far	Non-dilutive
Links	

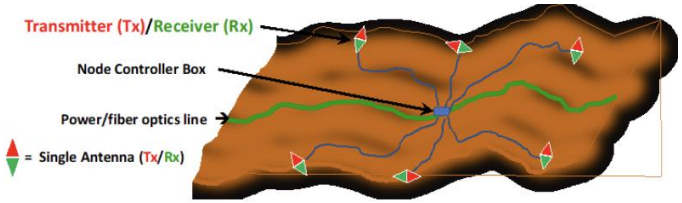
SEADAR

Subsea radar systems

DIANA Proposal:
Underwater Radar Security Fence: SEADAR™ Shield

Company description and technical snapshots

- HG Partners, LLC has developed and patented the first ever subsea radar that operates in saltwater.
- SEADAR™ Shield is an underwater electronic fence which provides continuous coordinated surveillance over areas of any size by utilizing continuous wave, multi-band electromagnetic signals to detect all conductive materials throughout the water column.



- Modular system comprised of a series of interlinked transmit/receive sensor groups.
- Shield's function is to monitor harbours, waterways, and coastal areas: detecting, locating, tracking in real-time multiple, simultaneous surface and subsurface objects containing any metal in the water.

Team:

- Carlos Fonts, CEO, Inventor
- John O'Hair , Inventor, Director of R & D, Steve Keysor
- Christian Lenczowski, Director of Operations

Key facts

Challenge	Sensing and Surveillance
Accelerator	PNW MAC (Seattle, USA)
Base	USA
Founded	2015
TRL	4
Revenues	Pre-revenue
Verticals	Harbor Security, Subsea Cable Monitoring
Target market(s)	Defense, Telecommunications, Energy
Funding goals	Actively raising
Raised thus far	Equity and non-dilutive
Links	

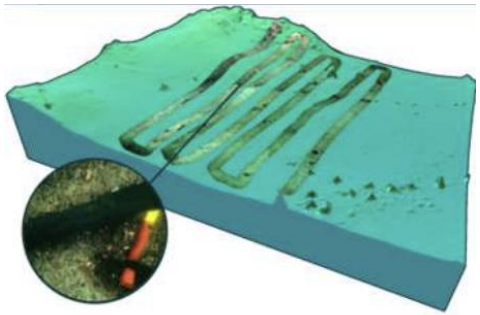
Skarv Technologies

A new view of the seabed - large scale underwater maps

DIANA Proposal:
Online Image Orthomosaic for Situational Awareness

Company description and technical snapshots

- Founded by four PhDs in Trondheim, offers software and hardware to operate large fleets of autonomous robots deployed in the ocean.
- Under DIANA, Skarv Technologies will improve on the data processing pipeline for optical seabed mapping – enabling near real-time high-resolution “satellite” imagery of the seabed.
- Currently delivering autonomous underwater robots and solutions to customers in marine environmental monitoring, aquaculture and science. Want to expand to defence and energy sector.
- Currently delivering autonomous underwater robots and solutions to customers in the marine environmental monitoring space, aquaculture and science. Want to expand to defence, energy.



Team:

- Dr. Trygve Fossum, CEO
- Dr. Petter Norgren-Aamot, CTO
- Dr. Øystein Sture, M.Sc, PhD
- Tore Mo-Bjørkelund, M.Sc,

Key facts

Challenge	Sensing and Surveillance
Accelerator	PNW MAC (Seattle, USA)
Base	Trondheim, Norway
Founded	2019
TRL	6
Revenues	Revenue Commercial and government
Verticals	Robotics and Drones Maritime Mapping
Target market(s)	Aqua-culture, defence, energy, environmental
Funding goals	Planning to raise within 12 months
Raised thus far	Non-dilutive
Links	

SOTIRIA Technology

Beyond Acoustics Underwater Intelligence

DIANA Proposal:
Encephalon™

Company description and technical snapshots

- Deep-tech company developing underwater intelligence systems tailored to mission critical defence and national security applications, aiming to enable NATO-allied navies and civil infrastructure industrial partners to optimally protect critical offshore & seabed infrastructure.
- Encephalon is a passive, autonomous and re-deployable underwater surveillance system, fusing data from multiple acoustic, magnetic and above-surface sensors to augment incursion detection capabilities.
- Recognized by MIT Tech Review as Innovators Under35 Europe.
- Collaboration with the Portuguese Navy in REPMUS23 and engagement with another 2 allied Navies, Member of 2 EDF Industrial consortiums with all major EU shipbuilders (SAAB, Naval Group, Navantia, Fincantieri, Thyssenkrupp).

Team:

- Angelos Tsereklas Zafeirakis, Co-founder and Managing Director
- Georgia Stamou, Electronics Engineer, PhD Embedded Software
- Panagiotis Priftis, Materials Engineer, PhD Sensors Expert
- Leda Tzannetou, AI/ML Engineer, PhD Data processing Expert
- Ioannis Anastasakis, Sr. Executive Officer, 3-star General Hellenic Armed Forces(ret)

Key facts

Challenge	Sensing and Surveillance
Accelerator	Mass Challenge (Boston, US)
Base	Athens, Greece
Founded	2021
TRL	5
Revenues	Revenue Commercial and government
Verticals	Sensors AI/ML- Data fusion
Target market(s)	Defence, Energy
Funding goals	Planning to raise within 12 months
Raised thus far	Equity and non-dilutive
Links	

Phantom Photonics

Sensing in Extreme Environments

DIANA Proposal:
Quantum LiDAR

Company description and technical snapshots

- Specializes in designing and building advanced photonic sensors utilizing quantum coherence for enhanced noise resilience.
- Their LiDAR technology offers increased operational distance, covert functionality, and resistance to blinding attacks, making it suitable for both defence and civilian applications like undersea monitoring and satellite anti-collision systems.
- Development/procurement with Canadian DND for 3D Quantum LiDAR Imaging solution for atmospheric use with stealth capability.
- Patent Pending.

Team:

- Alex Maierean, CEO, C. Master's in Math (Quantum Information)
- Prof. Thomas Jennewein, Quantum Technology Strategy and Business Advisor, PhD, Experimental Quantum Photonics, PI for QEYSSat, Chief Scientist at QEYnet, CEO at UQD.

Key facts

Challenge	Sensing and Surveillance
Accelerator	Deep Tech Lab (Copenhagen, DK)
Base	Canada
Founded	2023
TRL	4
Revenues	Pre-revenue
Verticals	Stealth Sensing Quantum Hardware
Target market(s)	Defence and Space, Maritime Imaging
Funding goals	Actively raising
Raised thus far	Non-dilutive
Links	

Water Linked

Redefining underwater perception

DIANA Proposal:
3D Sonar and Sensor Fusion for Imaging and Mapping

Company description and technical snapshots

- Founded in Trondheim in 2013 with a unique technology platform for underwater acoustics, completed the technology verification phase 2013-2017 and started the commercial phase 2018.
- Launched the world's smallest Doppler Velocity Logger (DVL) in 2020. Main market is miniature/inspection class ROV and AUV.
- Developing the company's first acoustic imaging product with a 3D sonar for imaging and mapping. The 3D sonar is an "acoustic camera", bridging the gap between 2D sonars and cameras.
- Sensor fusion between 3D sonar and navigation products will enhance autonomy through situational awareness and SLAM.

Team:

- A strong technical-focused team of 34 with more than 20 R&D engineers, M.Sc and PhDs.
  - Torgeir Trøite, Founder & Chief Scientist, M.Sc. Electrical Engineering, serial entrepreneur
  - Oliver Skisland, CEO, 20+ years of industrial and management experience
  - Torstein Skogseth, CFO & Businesss Dev., 10+ years of industrial experience

Key facts

Challenge	Sensing and Surveillance
Accelerator	Mass Challenge (Boston, US)
Base	Trondheim, Norway
Founded	2013
TRL	5
Revenues	Revenue Commercial and government
Verticals	Marine Equipment, ROV/AUV, Sonar
Target market(s)	Aquaculture, defence, energy, , science
Funding goals	*not provided*
Raised thus far	Equity and non-dilutive
Links	

Thank you!