Technical White Paper

## 1. Executive Summary

**The MARINIX Ocean Tech project is a pioneering venture aiming to revolutionise the realm of Carbon Dioxide Removal (CDR) with a unique method of inducing Marine snow formation. Through this technology, up to 20% of the world's annual carbon emissions could potentially be offset, significantly contributing to global carbon reduction efforts.**

To fund our venture, we require a total of 10 million Euros, procured through an innovative application of crowdfunding via Blockchain technology. Our platform will generate 550,000 smart contracts or tokens, each valued at 20 Euros. Each token represents a futures contract for a metric ton of carbon that will be captured and stored through our groundbreaking CDR method. We have chosen Blockchain because of its transparency and data integrity. We chose a specific Polygon-based Blockchain solution because the Polygon net is carbon neutral, while obtaining necessary security and build and scale approach in developing decentralised crowdfunding applications.

The crowdfunding campaign, accessible to a broad audience, is poised to offer significant returns. With tokens priced substantially lower than current and forecasted carbon removal prices. Our venture is geared towards investors looking for high-potential returns despite the inherent project risks. Substantial contributors also have the option to acquire equity.

Beyond being an attractive investment prospect, MARINIX Ocean Tech makes substantial strides towards global sustainability. Led by Dr. Staša Puškarić, our diverse international team of over 30 specialists (while 10 of them holding Ph.D. degrees) from nine countries is prepared to set this project in motion. We believe that MARINIX Ocean Tech will not only offer a robust investment opportunity but also set a precedent for future sustainability projects by amalgamating novel technology, smart financing, and global cooperation to combat climate change—one of the most pressing issues of our time.

## 2. Introduction

Climate change poses one of the gravest challenges of our era. The scientific consensus confirms that anthropogenic activities, specifically the emission of greenhouse gases, are accelerating global warming. Carbon dioxide ($CO_2$) emissions, largely from fossil fuel combustion and deforestation, account for about 76% of total greenhouse gas emissions, underscoring the urgent need for innovative, effective, and scalable carbon capture and storage (CCS) solutions.

Welcome to the MARINIX Ocean Tech project - a groundbreaking venture aiming to overhaul the current state of CCS technology and make a significant contribution to global carbon removal efforts. Our project leverages a novel Ocean CDR method that induces Marine snow formation for atmospheric carbon removal and storage. It is built on a blend of cutting-edge technology, advanced research, global collaboration, and an innovative funding approach.

Leveraging Blockchain technology, we've developed a novel approach to project funding - a global crowdfunding platform where investors can purchase 'smart contracts' or tokens. Each token represents a future 10 metric tons of carbon that our project will capture, embodying both a tangible investment opportunity and a pledge for a greener future. With every token, investors are not just betting on financial returns but also contributing decisively to the battle

against climate change. And not only that, the technology itself (Polygon Blockchain) is carbon neutral while emitting only 0.00568 Wh per transaction[1] (compared to 699 170 Wh per Bitcoin transaction[2] or 50Wh of energy required to produce one A4 sheet that could if we opted for the paper version of contract[3]).

This white paper provides a comprehensive overview of the MARINIX Ocean Tech project, detailing our innovative CDR method, crowdfunding model, underlying technology, strategic partnerships, and most importantly, our potential environmental impact. This document aims to equip potential investors, partners, and other stakeholders with a thorough understanding of our project, its potential financial returns, and the significant environmental benefits it presents.

We invite you to explore more about the MARINIX Ocean Tech project at www.marinix.org. Our journey towards a more sustainable future has just begun, and we welcome you to be a part of this momentous venture.

## 3. Problem Statement

Addressing climate change is a task of unprecedented urgency. The Intergovernmental Panel on Climate Change (IPCC) warns that to avert disastrous environmental effects, global warming must not exceed 1.5 degrees Celsius above pre-industrial levels. According to the United Nations Framework Convention on Climate Change (UNFCCC), achieving this requires the world to reach net-zero CO2 emissions by 2050. This task is far from straightforward, given the world's current dependency on fossil fuels and the substantial emissions generated by industries and deforestation.

While progress has been made in reducing emissions through renewable energy and energy efficiency, these measures alone are unlikely to meet the 2050 target. According to the IPCC, we need to reduce emissions, implement carbon capture and storage solutions and remove up to 10 billion tons of CO2 from the atmosphere annually in order to reach the target. The IPCC report estimates that 5-16 Gt per year of carbon dioxide removal are needed to address emissions that we are not able to fully eliminate by the time we reach net-zero in $CO_2$ emissions, with potentially greater levels of carbon removal needed after that. Ultimately, the amount of carbon removal needed depends on the success of our decarbonization efforts, so this is likely the minimum amount we should be prepared to remove. (https://www.climateworks.org/blog/carbon-dioxide-removal-is-now-essential/)

Yet, existing CCS and CDR technologies often face challenges of high costs, significant energy requirements, and issues with commercial viability and scalability.

Moreover, securing funding for such ambitious projects, particularly those in the early stages of development, can be challenging. Traditional funding sources often favour projects with short-term returns, leaving those requiring significant upfront investment and offering long-term, transformative outcomes, underfunded.

In summary, the challenge lies in developing and funding a revolutionary Ocean CDR solution that can address the limitations of existing technologies while significantly

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[1] https://polygon.technology/sustainability
[2] https://digiconomist.net/bitcoin-energy-consumption
[3] https://www.apc.org/sites/default/files/SustainableITtips5_0.pdf

contributing to achieving net-zero emissions by 2050. The MARINIX Ocean Tech project was conceived to tackle these pressing issues. With a unique method that induces Marine snow formation to capture and store carbon, and a revolutionary funding model leveraging Blockchain technology, we aim to create a groundbreaking CDR solution that could play a pivotal role in mitigating global warming and climate change.

## 4. Proposed Solution

MARINIX Ocean Tech, a trailblazing Norwegian-Croatian startup, is driven by a mission to mitigate the world's climate crisis through novel atmospheric carbon removal methods. We propose a compelling solution that harmonises natural processes, advanced technology, and strategic business insight, setting us apart in the realm of carbon dioxide removal and storage. Here's an in-depth look at our proposition:

1. **Leveraging Nature's Mechanisms**: At the core of MARINIX Ocean Tech's solution is the innovative use of a natural phenomenon known as "marine snow". Guided by the research of Dr. Staša Puškarić, we plan to artificially stimulate and accelerate the growth of marine snow. This approach will absorb a significant amount of atmospheric carbon, which subsequently settles at the seabed, effectively and eco-friendly removing carbon from the environment. Our competitive advantage is that our method is scalable because of the large capacity of the ocean systems to remove carbon from the atmosphere, it requires no arable land and uses significantly less energy than mechanical Direct Air Capture (DAC). Where, DAC energy needs 12 GJ, marine snow energy needs 24 KJ per ton removed.

2. **Innovation Through Technology**: The commercial viability of our natural process relies on the development of pioneering technology. Key to this is the Light Spectrum Replicator (LSR) and a fluorometer. The LSR modulates the light and temperature conditions vital for marine snow incubation, while the fluorometer enables precise detection and measurement of natural substance degradation. Moreover, a series of AI-enriched sensors revolutionise the sampling process by monitoring the "water column". These technologies, under the expert guidance of Dr. Mateo Sokač and Professor Puškarić, place us at the technological forefront in verification of carbon removal and in the ocean CDR sector.

3. **Strategic Business Approach**: We have identified two major revenue streams from our unique solution. First, atmospheric carbon removal, increasingly important due to evolving environmental priorities, forms a significant part of our business strategy. With an expected cost-efficiency of less than 0.1 EUR per ton for carbon removed, we foresee a potential return on investment that surpasses every existing CCS and CDR solution. Second, our technology's capability to monitor Harmful Algae Bloom (HAB) offers an attractive monetization opportunity, given its relevance to industries like aquaculture.

4. **Project Timeline**: We have a clearly defined roadmap for our project. The research and development phase, including the development and testing of various technologies, spans from 2023 to 2026. Simultaneously, a 2023 crowdfunding campaign aims to raise 10 million EUR to fund these activities. Post-R&D, the focus will shift towards commercialization, scheduled for 2026 and beyond, emphasising carbon removal and HAB monitoring. We envision further expanding the applications of our technology from 2027 onwards.

In sum, by intertwining nature's potential with human ingenuity, MARINIX Ocean Tech's solution aspires to create a sustainable future where carbon removal is not just an environmental necessity, but also a viable and economically lucrative process.

**5. Technical Details**

MARINIX Ocean Tech pioneers an innovative approach to atmospheric carbon sequestration, harnessing a distinctive blend of marine biology, environmental science, and state-of-the-art technology. Our strategy stimulates the growth of marine snow, a natural oceanic phenomenon in which microscopic particles coalesce into larger bodies and descend to the seabed, capturing carbon in the process.

1. **The Light Spectrum Replicator (LSR)**: As a crucial part of our technology, the LSR has been developed and tested. It is designed to regulate the light as measured *in situ* with HyperOCR sensors (both quality and intensity of radiation) and temperature conditions during incubation period of the seawater samples labelled with $^{14}C$ sodium bicarbonate, key to quantifying carbon removal. This technology is a collaborative effort involving the research institutes NORCE (Norway) and IZOR (Croatia). By mimicking the optimal conditions for marine snow growth, the LSR will expedite the carbon sequestration process.

2. **Fluorometers**: Our project incorporates the design and development of a series of fluorometers, instruments that measure *in situ* formation of natural substances at very small scales, down to pico m ($10^{-13}$ m) which are involved in the formation of marine snow. These integral devices will gauge the efficiency of marine snow in absorbing carbon, providing a more accurate estimate of the carbon sequestration achieved and defining the optimal moment for starting the process of initialising the formation of marine snow.

3. **Sensors and AI Integration**: The project employs an array of other “off the shelf” sensors, coupled with artificial intelligence algorithms, to revolutionise the monitoring of the water column. This new system of sensors is engineered to characterise the physical and biochemical properties of a body of seawater in single most detail in scales from macro- to pico- scales ($10^{1}$ to $10^{-13}$ m) without the necessity to sample seawater in bottles and conduct analyses in the lab, offering real-time data streaming and analysis. The ultimate purpose of this new sensor system is to identify and track the formation, development, and senescence of marine snow. Dr. Sokač's AI technology will analyse these data sets, guiding decisions on where and when to stimulate marine snow formation characterising the paths of carbon from the atmosphere to the ocean depths.

4. **Smart Contract Implementation**: To simplify the crowdfunding process, the project will release 500,000 smart contracts, or tokens, each priced at 20 EUR.which generates 10 million EUR of support to our research. Each token signifies a futures contract tied to a 10 tons of carbon removed in the future. We're using Blockchain Technology to ensure a secure, transparent, and efficient transaction process. In 2022 the voluntary carbon market traded 500 billion tons CO2 equivalents, and our sales volumes will not have any negative impact on the market since we only take 0,0011% of the market. When the technology could remove up to 1 billion tons CO2 annully, this leaves us with room to grow significantly in balance with the expected growth of

the coluntary carbon markets. (https://www.reuters.com/markets/carbon/voluntary-carbon-markets-set-become-least-five-times-bigger-by-2030-shell-2023-01-19/). Still, MARINIX Ocean Tech's main goal is to reach the mandatory EU ETS market in the span of next six years. The most patient investors will have the opportunity to exchange their tokens for carbon removals and trade at prices on the mandatory markets (est.$100 today).

5. **Blockchain Technology and Smart Contracts**: An essential aspect of the MARINIX Ocean Tech project is the use of blockchain technology and smart contracts, led by Dr. Vanja Vejzagić and Dr. Martin Žagar. Their expertise in the financial and IT domains has been instrumental in developing smart contracts that ensure transparency, traceability, and security in the transactions associated with our carbon removal process. Blockchain technology allows for the seamless exchange and tracking of tokens linked to the amount of carbon removed, enhancing the reliability and integrity of the entire project.

The integration of these technologies creates a system anticipated to stimulate the production and control of marine snow, while effectively monitoring and reporting on carbon removal. Moreover, the versatility of these technologies suggests potential for additional applications, such as monitoring and prediction of Harmful Algae Bloom (HAB) which could contribute to additional revenue streams and societal benefits.

MARINIX Ocean Tech's technical blueprint, though ambitious, presents a scalable and sustainable answer to one of the world's most urgent problems. By merging marine science with advanced technology, it paves the way for the future of atmospheric carbon dioxide removal efforts.

## 6. Validation

Given the complexity and innovative nature of the project, it's crucial that the process and technologies deployed by MARINIX Ocean Tech undergo rigorous validation. This step will offer assurance to stakeholders—including investors, governments, and the scientific community—that the proposed solutions are both feasible and effective.

### Scientific Validation

The scientific validity of this project revolves around the central principle of stimulating, controlling, and monitoring the growth and senescence of marine snow to enable carbon sequestration. This principle is founded on the extensive research of Dr.Staša Puškarić, who has discovered and laboratory-verified the mechanisms to artificially stimulate and accelerate the marine snow growth process.

Beyond Dr.Puškarić's research, the project will incorporate ongoing scientific experiments and observations. To uphold accuracy and credibility, these scientific processes will align with standard scientific methodologies, involving peer review and publication in respected journals.

### Technical Validation

Technical validation will involve rigorous testing of the developed technology and equipment, including the Light Spectrum Replicator (LSR), fluorometer, and sensor systems.

This includes performance tests under varying environmental conditions, stress tests, and optimization to ensure peak performance. Dr. Mateo Sokač, an expert in artificial intelligence (AI), is in charge of developing and integrating AI algorithms into the overall system, adding a further level of validation to the project.

**Commercial Validation**

Commercial validation will evaluate the project's potential profitability and market sustainability. The primary commercial activities include atmospheric carbon removal and Harmful Algae Bloom (HAB) monitoring. Carbon removal is connected to the expanding carbon removal markets, while HAB monitoring can be marketed as a service to industries such as aquaculture. Potential return on investment, scalability, and market demand will be key determinants in commercial validation.

**Crowdfunding and Regulatory Validation**

Crowdfunding will serve as an initial form of market validation. By successfully raising funds from the public, MARINIX Ocean Tech will showcase that the project garners interest and belief. Furthermore, the use of Blockchain technology and smart contracts ensures transparency and accountability, complying with regulatory stipulations.

In conclusion, MARINIX Ocean Tech’s validation process will be a comprehensive and iterative process, integrating scientific, technical, commercial, and regulatory aspects. Each phase will provide critical feedback, assisting in refining the project's solutions and strategies, while establishing credibility and trust with all stakeholders.

**7. Blockchain Implementation**

Blockchain technology, often hailed as a groundbreaking tool, provides opportunities for enhanced transparency, security, and efficiency across various industries. For MARINIX Ocean Tech, the capabilities of Blockchain technology present an invaluable opportunity to introduce a new degree of transparency and efficiency to the carbon removal process.

**I. Tokenization of Carbon Removal**

By utilising Blockchain technology, MARINIX Ocean Tech intends to tokenize the carbon removal process, creating a digital representation of real-world carbon sequestration. These tokens will be transparent and immutable, allowing any interested party to verify the quantity of carbon being removed and stored by the MARINIX Ocean Tech system.

**II. Smart Contracts for Automated Transactions**

The deployment of smart contracts—self-executing contracts with the agreement terms directly written into the code—will automate transactions within the MARINIX Ocean Tech ecosystem. When a specific amount of carbon is captured and sequestered, a smart contract will trigger the creation and allocation of corresponding tokens to the responsible party. This automation could reduce administrative costs and increase transaction speed.

**III. Immutable Ledger for Verifiable Carbon Accounting**

Blockchain technology's core features include an immutable ledger that documents all transactions within its network. By implementing a Blockchain system, MARINIX Ocean Tech can provide an immutable, transparent, and publicly verifiable record of carbon

removal. This ledger will serve as an irrefutable source of truth for carbon accounting, enhancing stakeholder trust and facilitating participation in carbon markets.

**IV. Interoperability for Enhanced Collaboration**

The interoperability that Blockchain technology offers can foster collaboration among various stakeholders within the MARINIX Ocean Tech ecosystem, including researchers, investors, governments, and environmental organisations. This collaboration is vital for a globally coordinated effort to combat climate change.

**V. Enhanced Data Security**

Blockchain's decentralised nature and cryptographic security measures afford significant data security advantages. Once recorded onto the Blockchain, any data associated with the carbon removal process cannot be altered or tampered with, ensuring the data remains reliable and secure from potential cyber threats.

The inclusion of Blockchain technology in MARINIX Ocean Tech's carbon removal system symbolises an essential integration of environmental science and advanced technology. By leveraging the key strengths of Blockchain—transparency, immutability, security, and automation—MARINIX Ocean Tech is set to establish a new standard in verifiable, efficient, and secure carbon removal practices.

This comprehensive Blockchain implementation approach has been designed and developed under the expertise of Dr. Vanja Vejzagić and Dr. Martin Žagar. Their invaluable contribution to the project lays a robust foundation for the successful deployment and operation of the technology.

## 8. Business Model

The MARINIX Ocean Tech project is strategically positioned to tackle a pressing global issue - the urgent need to significantly reduce atmospheric carbon dioxide levels. By leveraging the natural process of marine snow formation for carbon sequestration, MARINIX Ocean Tech offers an innovative and sustainable solution. The integration of Blockchain technology further bolsters the project's value proposition by facilitating transparency, automation, and verifiability.

**I. Revenue Generation**

The primary avenue for revenue generation for the MARINIX Ocean Tech project will stem from the sale of carbon removals. Each unit of $CO_2$ sequestered by the MARINIX Ocean Tech technology will be tokenized on the Blockchain. These tokens can then be marketed to individuals, businesses, and governments seeking to offset their carbon emissions. Given the escalating global concern around climate change and the increasing demand for credible carbon dioxide removal solutions, the market potential for MARINIX Ocean Tech's offering is substantial. The coluntary carbon market quadrupled from 2021 to 2022, and is expected to be valued at 40 billion by 2030. (https://www.reuters.com/markets/carbon/voluntary-carbon-markets-set-become-least-five-times-bigger-by-2030-shell-2023-01-19/). MARINIX Ocean Tech's **main goa**l is to reach the mandatory EU ETS market in the span of next six years. The most patient investors will have

the opportunity to exchange their tokens for carbon removals and trade at prices on the mandatory markets (est.$100 today).

**II. Partnership with Environmental Organizations and Governments**

Establishing collaborations with environmental organisations and governments could provide additional funding and support for the project (Bet Global Warming holds 1% of the MARINIX  Ocean Tech company). Such partnerships can be enabled by the transparency and verifiability afforded by the MARINIX Ocean Tech Blockchain system. With an unequivocal and transparent record of carbon sequestration, MARINIX Ocean Tech represents an attractive choice for governments and organisations striving to fulfil their environmental objectives.

**III. Research Grants and Philanthropic Donations**

In light of the project's potential to significantly impact global carbon dioxide removal efforts, MARINIX Ocean Tech is optimally positioned to draw funding from research grants and philanthropic donations. This funding could originate from institutions committed to combating climate change, or from individuals with a passion for supporting innovative solutions in this area.

**IV. Licensing the Technology**

Once the MARINIX Ocean Tech technology is fully developed, validated, and operational, there exists potential for additional revenue generation through the licensing of this technology to other organisations or nations. This would enable various regions worldwide to utilise the MARINIX Ocean Tech method for carbon sequestration, thereby offering a scalable solution for global carbon dioxide removal.

**9. Investment Opportunity**

The MARINIX Ocean Tech project heralds a groundbreaking approach to one of humanity's most daunting challenges - global warming. By harnessing the natural process of marine snow formation coupled with the power of Blockchain technology, we are poised to revolutionise the field of carbon dioxide removal (CDR)

**Market Potential**

The global carbon market is slated for substantial growth as nations and businesses worldwide rally to meet their climate targets. With an urgent need for viable, effective, and innovative carbon sequestration methodologies, MARINIX Ocean Tech is strategically positioned to become a significant player in this burgeoning market.

**Scalability**

The scalability of the MARINIX Ocean Tech project holds significant promise, with the potential for a global reach. As the project matures and its technology becomes more refined, we anticipate the potential for licensing this technology to other organisations or nations, thereby broadening its scope and diversifying revenue streams.

**Financial Projections**

While detailed financial projections would require further specific data, the potential for revenue generation through carbon removal sales, partnerships, and technology licensing

indicates robust returns on investment.In the first two years, operational and capital expenses will total 2 million EUR annually with no carbon removal activities. By the fourth year, with anticipated 10 million tons of carbon removed and a voluntary market price of 10 EURO per ton, revenue is expected to reach 100 million EURO before expanding significantly in subsequent years as carbon removal scales up.

**Risk Mitigation**

Investment risks are mitigated through a strategically crafted business model that diversifies revenue streams. The incorporation of Blockchain technology further safeguards the project by guaranteeing transparency, security, and trust in every transaction and milestone.

**Social and Environmental Impact**

Investing in MARINIX Ocean Tech allows investors to participate in a project with substantial social and environmental impact. Our technology is designed to contribute significantly to the global effort to reduce atmospheric carbon dioxide, potentially alleviating the harmful effects of climate change. This impact investment extends beyond mere financial returns – it is an investment in global sustainability and climate resilience, a commitment to ensuring a healthier planet for future generations.

**10. Team**

**Dr. Stasa Puskarić**

Dr. Puskarić's work underscores the oceans' pivotal role in global carbon dynamics and introduces potential avenues for leveraging natural marine processes in the fight against climate change. He examines Carbon Kinetics in Oceans and highlights discrepancies in the prevailing understanding of carbon kinetics within the oceans. Dr Puskarić found that the conventional estimations of primary production are too low while the estimates of bacterial production are too high. When these figures are applied to the global ocean scale, they produce anomalous data. He asserts that a more accurate understanding of the carbon cycle might indicate that climate change is occurring at a much faster rate than previously believed, especially due to oceans absorbing less carbon than assumed.

Focus of Dr. Puskarić's research on marine snow, which are aggregates of microorganisms, detritus, and other particles in the water column, has opened new avenues for understanding carbon sequestration in oceans. Contrary to popular belief, marine snow is not solely the result of programmed cell death but is a complex interplay of old dissolved organic matter, newly formed organic matter, particles, and intracellular materials. These aggregates serve as separate ecosystems predominantly inhabited by cyanobacteria. They continuously absorb carbon dioxide, converting it into organic matter. Dr. Puskarić suggests that harnessing the natural processes of marine snow formation could be a solution to aid in mitigating the effects of rising atmospheric carbon levels.

**Dr. Mateo Sokač**

Dr. Sokač, is a dedicated Data Scientist and board member with extensive experience in machine learning, artificial intelligence and medicine. Mateo's background is an interesting mix of Information Technology (BSc), Bioinformatics(MSc) and Health Science (PhD) which brings unique experience and expertise to our team. His research involves understanding cancer evolution and developing novel applications of artificial intelligence in multiple scientific fields.

**Dr. Vanja Vejzagić**

Dr. Vanja Vejzagić is an academic with a keen focus on the intersections of economics, sustainable development, and tourism management. He holds a Ph.D. in economics from the University of Rijeka, Faculty of Tourism and Hospitality Management in Opatija, Croatia, and Manchester Metropolitan University Business School, UK. Dr. Vejzagić also holds a Master's degree from the same institution in Rijeka, with her thesis centred on the life cycle assessment of tourist destinations based on sustainable development principles.

His research contributions include significant publications on eco-efficiency in tourist destinations and challenges of environmental accounting in these regions.Professionally, Dr. Vejzagić's experience spans from working in the Accounting and Finance department at the University of Rijeka to a Senior Lecturer in Accounting at the Manchester Metropolitan University Business School. Currently, he works as a lecturer in Accounting and Finance at RIT Croatia.

**Dr. Martin Žagar**

Dr. Žagar Martin has that combination of IT background and PhD in Core Computing, with Masters in Ecology and Forestry. He is engaged to leave the planet in better condition than we inherited it. He holds EMBA degree from Cotrugli Business School, 2016., Ph.D. degree in computer science from University of Zagreb, Faculty of Electrical Engineering and Computing, 2009. and Mr.Sc. degree in eco-engineering from University of Zagreb, Faculty of Chemical Engineering and Technology, 2006. His research fields of interest are connected with data analysis, data compression, digital transformation, multimedia applications and telemedicine while leading several EU-funded projects.

**Mladen Vukmir**

Mr. Vukmir is a distinguished expert in intellectual property law. After his law degree from Zagreb, he specialised at the Franklin Pierce Law Center in the U.S. He gained experience at the Hanžeković & Radaković law firm in Zagreb and later founded "VUKMIR I SURADNICI" in 1991. Mladen was pivotal in the establishment of Zagreb's State Intellectual Property Office (DZIV) and earned recognition as a patent and trademark representative by DZIV and the European Patent Office.

He has affiliations with global law associations like AIPPI, IBA, and INTA. Mladen lectures frequently, holds various arbitration and mediation roles, and served as the president of AIPPI Croatia and a board member of INTA. He's also been an advisor to organisations like WIPO and the European Commission and is the Honorary Consul General of Denmark in Zagreb.

**Hanne M.E. Jelavic**

CEO and co-founder of Gea275 Ocean Tech and managing director of Beat Global Warming. She holds a Masters in Sustainable Development Management and has work experience form management and environmental certification. She is a previous student of Dr. Puskaric, and her environmental activism was awakened during the environmental science classes at RIT Croatia. She is an optimist and a problem solver. As a mother of three young children she is passionate about saving the planet for the future generations.

**11. Risks and Challenges**

Like any bold venture, MARINIX Ocean Tech acknowledges the potential risks and challenges that may be encountered along our journey. We are committed to addressing these proactively and transparently, and they include:

**Scientific and Technical Challenges**

Our project revolves around an innovative yet commercially untested natural method of inducing marine snow to sequester carbon. While early research and testing are promising, there is a risk that broader scale implementation may not produce anticipated results or may pose greater complexity than initially considered. Moreover, our reliance on specific, continuously developing technologies like the Light Spectrum Replicator (LSR) and AI algorithms might present unforeseen technical difficulties.

**Regulatory Risks**

The voluntary carbon market is unregulated, and every supplier must take responsibility and are accountable for the carbon dioxide removals they sell on the market. One of our main priorities is to ensure that we develop a good verification standard together with the third party verification body, and that we work to influence the development of standards and regulations in the market. The regulatory environment for Ocean Carbon Dioxide Removal (CDR) is currently banning commercial ocean CDR by marine snow under the London Protocol. However, it is allowed to conduct scientific research on the topic. With scientific research and results we intend to convince the IPCC and the International Maritime Organization (IMR) that Ocean CDR by marine snow is safe. If the science is clear and validates the safety of our methodology,  we expect legislation or regulatory changes to change in our favour. . We remain actively engaged in understanding and adapting to these potential shifts.

**Market Risks**

Our business model is heavily dependent on the value of carbon removals and their acceptance in global markets. Variations in these markets or changes in the perceived value of such carbon removals could have implications for our financial model.

**Environmental Impacts**

Though our mission is firmly rooted in combating climate change, the large-scale induction of marine snow could potentially lead to unforeseen environmental consequences. We are fully committed to continuous environmental impact assessment and close collaboration with regulatory bodies to ensure our methods are not only safe but also advantageous for the ecosystem. Marine snow is known for also filtering heavy metals and most probably also micro plastics out of the water column, which could be a potential positive side effect.

**Technological Integration and Implementation**

Our solution requires the integration of multiple technologies, such as artificial intelligence, fluorometer systems, sensor technology, and Blockchain. This could present challenges in achieving a seamless, holistic functioning of the system.

Aware of these challenges, we are unflinchingly dedicated to meeting them head-on. Our team of seasoned scientists, technologists, and business professionals are actively developing robust risk mitigation strategies to assure the project's success and resilience.

## 12. Conclusion

MARINIX Ocean Tech is at the forefront of pioneering efforts to combat climate change by marrying the worlds of marine science, cutting-edge technology, and Blockchain. Its ambitious yet deeply promising project aims to harness the natural process of Marine Snow to sequester carbon from the atmosphere, while also providing a transparent and verifiable record of carbon removal through Blockchain technology.

This innovative approach not only seeks to address one of humanity's most pressing challenges - global warming - but it also paves the way for an exciting market in carbon removals, opening up opportunities for potential investors.

However, with innovation come challenges. MARINIX Ocean Tech will face technical and scientific hurdles, regulatory shifts, and the unpredictability of carbon markets. But armed with a team of experienced professionals and a proactive strategy to mitigate risks, the project is well-positioned to overcome these challenges.

Ultimately, MARINIX Ocean Tech represents more than a potential solution to a global problem; it's an embodiment of the power of human ingenuity and our unwavering determination to protect and preserve our planet for future generations.

With its scalable and sustainable model, MARINIX Ocean Tech is not just offering a promising investment opportunity but also a chance to contribute to a more sustainable and resilient future. In the face of accelerating climate change, initiatives like MARINIX Ocean Tech are not merely options - they are necessities.