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1: In which markets do you see the shapewave technology being applied?

We have identified several potential applications together with our partners and suppliers. The list is long but to give you an idea:

1.1 Airborne Wind Energy:

There is significant development in this sector but current systems often use tube kites with a leading edge and support struts held together by canopy. The turbulence caused by the leading edge not having an aerodynamic profile creates a less efficient airfoil and therefore less energy is generated. With shapewave there is the opportunity to make an aerodynamically perfect profile without adding extra weight.

1.2 Tooling/Mold Making:

Imagine a positive mold which can be deflated after the composite structure has been produced and you probably already have an idea of the potential. Using shapewave technology you could, for example, produce a hull for a boat without having to build the deck separately from the hull. This could not only be useful for boats but all kinds of composite structures.

1.3 Sailing:

Wingsails, as used in the America's Cup, are extremely high tech and expensive. Therefore the commercialization of wingsails to a larger public is still a distant dream. With shapewave it would be possible to develop a new type of sail which can be deflated and inflated on the spot thus eliminating the need for a crane to lift the sail on and off. Current wingsail technology is built on a framework of carbon and is therefore very expensive to produce. With shapewave we anticipate being able to build wingsails at a fraction of the current cost bringing them within reach of the general public.

1.4 Boating:

Inflatable hulls are here to stay and are being used in a wide array of applications from kayaks to race boats. Currently however they are heavy, have no hydrodynamic properties and therefore have limited performance. At shapewave we will be able to produce inflatables with concave and convex shapes along a surface. Being able to actually shape the hull will open up new possibilities in terms of handling, speed and packability.

1.5 Military:

The US Military was actually on the forefront of the development of the current drop stitch technique used in dinghy's, ISups and Kayaks. New developments create new opportunities and with shapewave we could bring the technology back to the military using the technology for



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inflatable drone wings, inflatable command centers, decoys, landing platforms and possibly even lightweight easy to deploy and packable bridges.

1.6 Outdoor/Recreation:

Imagine camper pop-up tents without a support frame and double sided inflatable walls insulating the interior from hot or cold temperatures outside. Kites and wingfoil wings with enhanced performance at competitive weight and cost.

2: Which milestones have been achieved by shapewave Industries so far?

Before starting this project we set several milestones for ourselves starting with securing the patent on the technology which we managed to achieve in 2020 and internationally in 2022.

The next milestone was to fully develop the technology digitally and test using software which we managed to achieve during the first half of 2023.

2023 started with securing financial support to build our first prototype. Funding for this first prototype came from industry leaders who recognized the potential of the technology and sponsored this phase of the project.

After securing funding in May of 2023 we began building a team consisting of a mechanical engineer, a software developer and two founders of which one has a background in commercial economics and the other in industrial design.

Next to this we sourced partners to produce the different components of the technology. Kick-off for the build has started in October of 2023 and we expect to have the first prototype ready for testing in December of 2023.

3: When will we see shapewave parts in the market?

We expect to see our first products available for sale in 2024 or 2025 depending on the complexity of the product we will identify as our beachhead market. We expect to be able to start building our first prototypes for customers during the start of 2024.

4: What benefits can be achieved by using shapewave parts?

We focus on the following benefits even though they can vary depending on the application:

4.1 Weight savings:

shapewave parts can be up to four times lighter than current drop stitch manufactured parts.



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This is because the membrane material on a shapewave inflatable is not part of a woven construction as it is in drop stitch inflatables and there is a freedom in terms of which membrane material can be chosen. In the ultralight weight realm of ram air wings we can equal current stitched constructions with a highly improved lift to drag ratio and construction stiffness, allowing for smaller wings with the same performance.

4.2 Form freedom:

Parts made with shapewave technology can have almost any form. We can incorporate double curvature shapes, asymmetrical shapes, object wrapping around support struts, valves etc.

4.3 Packability:

For those of us who live with limited storage space, owning boats, boards or canoes becomes an option without compromising on performance.

Because we can use much thinner fabrics with shapewave technology we can create products which are much easier to transport and carry around without making compromises on performance due to shape limitations. This is particularly important for outdoor products and travel gear.

4.4 Flexibility:

Since shapewave will be using a technique comparable to 3D printing, it does not require expensive tooling to create parts. This allows us to create one-off parts or parts with a low production volume as well as prototypes.

5: Which business model is shapewave planning to use?

During our start-up phase, we will firstly focus on growing the number of wavemakers to populate our first shapewave farm with which we can supply OEM products to our clients, while secondly we will support our clients with exploring the possibilities and designs for this exciting new material.

In the future we plan to offer a way to have our machines installed at our customers premises to produce locally and avoid shipping products back and forth.

6: How did you get funding to get to this point?

We have been very fortunate that many industry leaders have identified shapewave as a possible game changer in the industry and have been willing to support us with their expertise and funds. We will be welcoming more investors to progress forward from our first prototype to a production ready model. So, if you are interested in being part of this journey, please reach out to us!

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7: What inspired the development of your unique production technique for rigid inflatable structures?

A cross-pollination of a wide knowledge of manufacturing techniques and materials mixed with the observation that something like shapewave is still missing. The development was sparked by discussions on inflatable rigs within the DNA advanced sailing R&D team late 2017.

8: What materials do you utilize in shapewave parts, and how do they contribute to the durability and performance characteristics, particularly in harsh or demanding environments?

We can use any fabric as long as it has a thermoplastic elastomer coating so we can weld the webbing support structure to the fabric. This could be anything from a simple TPU coated nylon to a high performance sail cloth. We're working closely together with specialist material suppliers to identify the best fabrics for different applications and might start working on our own in the future. The beauty of being able to use any fabric is that we can choose different properties depending on the end user and the application.

9: How does your manufacturing process or the materials used in shapewave products align with sustainability goals or environmentally friendly practices?

Even though inflatables are still a long way from being 100% sustainable we hope that with small steps forward we can lead the way to becoming more and more sustainable in the future. One of the biggest wins for us is that we are 100% PVC free. TPU is well known as a better, more sustainable alternative for PVC. Next to this our production process allows for less waste and in addition it is completely run by electricity which can be sourced from renewable sources.

The cutting waste we have is 100% recyclable and we could even use bio based elastomers (corn starch) and natural fiber canopies.

10: What has been the market response so far, and what strategies do you have in place to encourage adoption within different industries and market segments?

Even though we have been under the radar for a long time we have received more interest from the market than we could have ever expected including financial support from industry leaders such as Red Paddle Inc.

Interest comes from a variety of different markets such as sailing, boating, defense, funsports, aviation and industrial applications. Once we have our wavemaker01 machine operational we will start working on some projects for our sponsors first as they are very actively involved in the project and could provide us with valuable feedback to improve our technology. After this we will be opening our doors for a variety of projects already in the pipeline.