

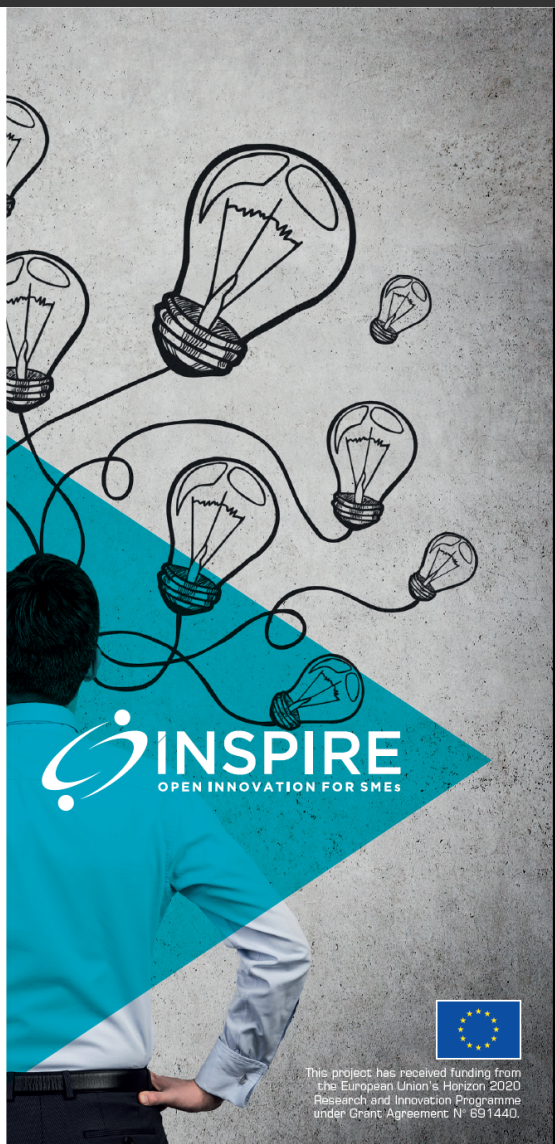
CORPOWER OCEAN

Sweden www.corpowerocean.com

A pioneer Swedish SME working on a new compact, high efficiency Wave Energy Converter collaborated with leading international research institutes to test and validate their new technology

Executive Summary

CorPower Ocean AB was founded in 2009 to develop Wave Energy Converters (WEC). The resonant Wave Energy Converters developed by CorPower Ocean have a heaving buoy on the surface absorbing energy from the combined surge and heave motion of the waves. The company collaborates with a research institute in Portugal and the Norwegian University of Science and Technology.



CASE N°: SC44

SECTOR: RENEWABLE ENERGY

TECH INTENSITY: HIGH-TECH

LIFE CYCLE STAGE: EARLY-STAGE

INNOVATION VECTORS: PRODUCT, SERVICE

OI PARTNERS: PSR

KEYWORDS: Wave energy, converters

- BACKGROUND FRAMEWORK
- INNOVATION CHALLENGE & MARKET OPPORTUNITIES
- OI TRAJECTORY
- BUSINESS IMPACT
- LESSONS LEARNED



BACKGROUND

CorPower Ocean AB was founded in 2009 to develop Wave Energy Converters (WEC). CorPower founder, Stig Lundbäck, MD, spent most of his life studying the pumping principles of the human heart. He invented the Dynamic Adaptive Piston Pump Technology (DAPPT) in 1984, and used his comprehensive knowledge to imagine and construct a Wave Energy Converter based on similar principles.

INNOVATION CHALLENGE & MARKET OPPORTUNITIES

The wave energy industry is still at quite an early stage, roughly where wind energy was in the 1980s. A strategic challenge is to be able to offer products that customers are ready to buy, in other words a reliable technology delivered by a company that can also offer product and after sales guarantees, etc.

The market opportunity is based on an overall belief in growing demand for sustainable energy production.

OPEN INNOVATION TRAJECTORY

Concept development

Corpower has developed a new technology for wave power stations. In energy technology, it is standard practice to verify lab results and mathematical models to prove that they are valid for industrial applications (formal stage-gate process). In other words, the development trajectory is rather clear once the company decides to apply their technology to wave energy situations.

The development process, IPR and competition strategy

More precisely, the company set about obtaining external validation for its technology, in particular concerning its hydrodynamics, i.e. the amount of

energy absorbed and energy density. Practically, this meant that Corpower wished to verify experimental results and mathematical models in a ship model basin at an independent research institute. The testing was carried out by a research institute in Portugal in collaboration with the Norwegian University of Science and Technology.

The underlying technology is patented by Corpower, but the company also relies on licensing necessary technology from external providers.

The company does not have an explicit competition strategy. At this stage the company is more or less a development company that does very little sales (mainly through public procurement).

Commercialization and follow-up

The company is in a pre-marketing phase and is not yet commercializing the product. They are still undertaking improvements to the technology and moving forward in the stage-gated development process.

BUSINESS IMPACT

The main outcome was the verification of the technology and that it was possible to improve energy efficiency with new phase control technology. As a result of the successful prototype, a large Spanish energy company provided new financial resources to the company. The technology has been improved, partly by licensing a new technology from an external provider. Another result is that the company is now ready for commercial testing.

One of the main learnings of the company's collaborative experience is to be very selective with whom to partner. In particular, never bring on board partners who are pushed by investors or other capital providers and where you see little benefit. You have to (at least try to) be thinking long-term and never engage with a partner who can only provide money. In larger consortia, it is critical to be careful with the technical and commercial rights. Think through who you do not want to work with! Be the devil's advocate and try to get the best in class on board!

The company is moving forward through the stage-gate process and obtaining more and more industrial verification of the technology.

LESSONS LEARNED

The case provides an interesting contrast to fast moving consumer technologies. In the energy sector product development is extremely lengthy and often involves the creation of partnerships from both the private and public sector.

Main lessons learned:

1. Successful open innovation is likely to be associated with working with the best partners regardless of geography.
2. Even though you need partners you need to be extremely careful when entering partnerships. Sometimes you need to restrain yourself and not pick up easy cash on the table.