

Strategy overview



1. Introduction

PML Applications Ltd is a wholly owned trading subsidiary of PML, registered in England, company number 4232750.

The formation of PML Applications Ltd was linked to the Natural Environment Research Council (NERC) decision to disband the NERC Centre for Coastal and Marine Sciences, of which PML was part, and to consider new operating/ownership models for PML. The business model developed by PML's Senior Management Team, in conjunction with Ernst & Young, to form a charitable company limited by guarantee with a wholly owned commercial trading subsidiary to provide benefit to the charity, received NERC and HM Treasury approval in the autumn of 2001.

Vision:

PML Applications' vision is to become a leading provider of relevant and excellent environmental science applications and solutions, in the UK and internationally.

Mission:

PML Applications Ltd strives to develop applications from marine (& aquatic) science, mainly but not exclusively developed from Plymouth Marine Laboratory (PML) research, for the benefit of its stakeholders.

Performance

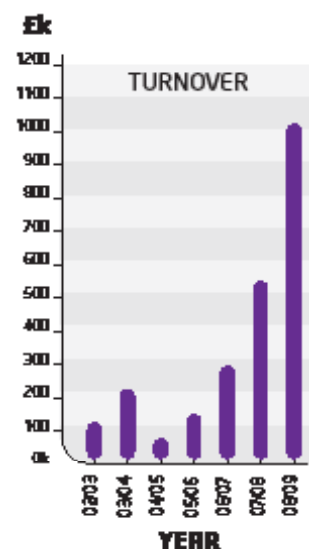
PML Applications Ltd made its first profit in the financial year 2007-08 and followed this with a profit of £52k in 2008-09 on a turnover that exceeded £1m, which was repeated in 2009-10.

PML Applications Ltd currently employs 19 staff and buys in staff time from PML under the terms of a service level agreement (SLA).

PML Applications Ltd conducts its business using a combination of staff resources and expertise drawn from three sources:

- from PML
- increasingly from its own staff as it grows
- from third party contractors and consultants

The company currently generates income primarily from contracts and research grants, but in the longer term revenues will increasingly come from licences, royalties and sales of products, as well as from spin-out companies and joint ventures. The latter are (at this stage in the company's development) much harder to forecast and plan.



PML Applications' turnover and profit/loss since its creation

Corporate Governance & Operations

The company is governed by a Board of Directors, including at least one PML Trustee as required by charity law.

Chairman:

David Peat (former PML Trustee)

Directors:

Prof Ralph Rayner (current PML Trustee)

Prof Stephen de Mora (Chief Executive)

David Robins (Deputy Chief Executive)

Peter Claridge (PML Deputy Chief Executive)

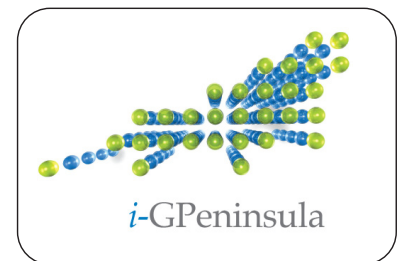
Beverly Tremain (Company Secretary)



Technology Transfer

The *i*-GPeninsula initiative, started in 2006, provides PML Group with a developing Technology Transfer Office based within PML Applications. The first two and half years have focused on capacity building through a range of measures and training that has targeted identification, management and exploitation of IP. This process has included reviewing 'best practice' and working with leading technology transfer experts, such as ISIS Enterprise from Oxford. The current programme (2009-2011) continues the capacity building and also has a significant element to invest funds in 'proof-of-concept'. Specific outcomes are:

- **Further identification of knowledge assets combined with increasing emphasis on the development of innovation and entrepreneurship.**
- **Continued capacity building to stimulate an increasing focus on commercialisation benefits through raised organisational awareness of opportunities held in an Opportunities Register.**
- **Commercialisation opportunities closely aligned with emerging market potential through market assessment and horizon scanning.**
- **Closer relationships forged with potential partners through contacts and networks that have been established, leading to investment groups, strong joint ventures and the development of licensing income.**
- **Proof of concept funding will help accelerate development of leading projects on the Opportunities Register.**

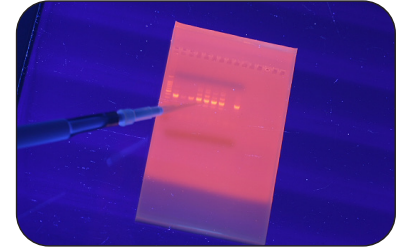


2. Business Areas

PML Applications Ltd is concerned with the development and application of outputs from science and technology carried out within Plymouth Marine Laboratory as well as developing its own more applied science and business opportunities.

PML Applications Ltd has three primary business areas:

- **Research, services and products in the low carbon arena (particularly in relation to marine renewable energy);**
- **Sources of novel organisms and expertise in isolating compounds for a range of biotechnology applications;**
- **Products and services concerned with environmental monitoring, mapping and forecasting.**



Low Carbon Arena

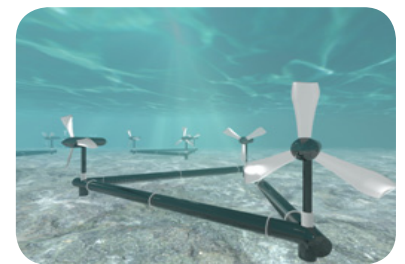
An example: Deltastream tidal demonstrator project

We are currently investigating, with Tidal Energy Ltd, the potential environmental impacts of Deltastream device on benthic communities, intertidal area, fish and fishing.

The device is unique in having 'designed out' some of the environmental issues because:

- There are no structures drilled into the seabed - this minimises construction issues
- Slow turbine revolutions which minimise impacts of collisions on fish, diving birds and mammals
- The restricted footprint minimises direct losses of seabed habitat
- It is a freestanding gravity structure for easy deployment and decommissioning
- Low carbon footprint (including all life-cycle stages)

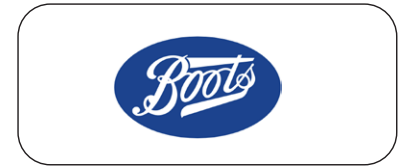
We will be using the experience of the DeltaStream project to develop further concepts and guidance for environmental screening of devices at an early stage of project development.



Biotechnology Applications

An example: Nutraceuticals and Sunscreens

A fruitful collaboration with Boots to develop natural sunscreens is leading to broader opportunities to exploit natural extracts and products for the wider healthcare and food additives industry.



An example: Biocatalysis

PML Applications is an industrial affiliate of the Centre of Excellence in Biocatalysis, Biotransformation, and Biocatalytic Manufacture (CoEBio3) and has used this to good advantage in developing a programme in biocatalyst discovery. Current screening activities have identified over a dozen different enzyme activities with potential applications in biocatalysis some of which will be developed further in conjunction with appropriate partners.

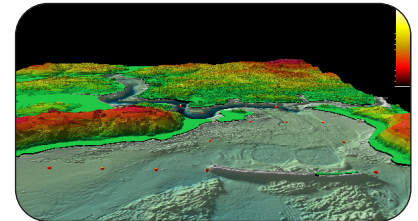
“Boots considers that PML’s research meets the needs of the Health and Beauty industries in many ways. PML Applications has shown that micro-algae are a valuable source of new and effective raw materials and have identified potential scale-up processes that would allow sustainable environmentally friendly commercialisation”

Ed Galley, New Materials and Patents Adviser Boots plc

Environmental Monitoring, Mapping and Forecasting

An example: 3-D Visualization

There is increasing evidence that new technologies are being used to deliver data in 3-D. Although 2-D delivery will continue, horizon scanning of new information delivery shows the rapidly growing use of 3-D, especially in military, environmental and electronic games’ applications.



Preliminary applications have been developed through combining LIDAR data, bathymetric data and digital photography.

3-D PML visualisation of Plymouth Sound and surrounding land; PML Applications is working in collaboration with the Ministry of Defence (MoD) and the United Kingdom Hydrographic Office (UKHO)

An example: MeDON - Marine e-Data Observatory Network

PML Applications is the lead partner developing the concept of a fibre-optic cabled observatory in the Western Channel and the application for MeDON - Phase I submitted to Interreg IVa was successful. This project involves Ifremer, Oceanpolis, Ensieta, in France, and the University of Plymouth, PML Applications Ltd and the National Marine Aquarium in the UK. MeDON is a phased project, with anticipated duration of 6 to 7 years. Industry partners have expressed interest and support for the concept of MeDON as a test-bed for instruments and sensors.