



Lifeline Energy

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Case Study - Freeplay / Lifeline Energy

Trevor Baylis was quite a swimmer in his youth, representing Britain at the age of 15. So it wasn't entirely surprising that he ended up working for a swimming-pool firm in Surrey before setting up his own company. He continued his swimming passion – working as a part-time TV stuntman doing underwater feats – but also followed an interest in inventing things.

One of the projects he began work on in 1991 was to have widespread impact, despite (or rather, because of), being a 'low tech' solution to a massive problem.

Having seen a documentary about AIDS in Africa he began to see the underlying need for something which could help communication. Much of the AIDS problem lies in the lack of awareness and knowledge across often isolated rural communities – people don't know about causes or prevention of this devastating disease. And this reflects a deeper problem – of communication. Experts estimate that fewer than 20% of the world's population have access to a telephone, while even fewer have a regular supply of electricity, much less television or Internet access. Very low literacy levels exclude most people from reading newspapers and other print media.

Radio is an obvious solution to the problem – but how can radio work when the receivers need power and in many places mains electricity is simply non-existent? An alternative is battery power – but batteries are equally problematic – even if they were of good quality and freely available via village stores people couldn't afford to buy them regularly. In countries where US\$1 a day is the standard wage, batteries can cost from a day's to a week's salary. The HIV/AIDS pandemic also means that household incomes are under increased pressure as earners become too ill to work while greater expenditure goes towards healthcare, leaving nothing for batteries.

What was needed was a radio which ran on some different source of electricity. In thinking about the problem Baylis remembered the old-fashioned telephones of pre-war days which had wind-up handles to generate power. He began experimenting, linking together odd items such as a hand brace, an electric motor and a small radio. He found that the brace turning the motor would act as a generator that would supply sufficient electricity to power the radio. By adding a clockwork mechanism he found that a spring could be wound up, and as it unwound, the radio would play. This first working prototype ran for 14 minutes on a 2-minute wind. Trevor had invented a clockwork (wind-up) radio! As a potential solution to the communication problem the idea had real merit. The trouble was that, like thousands of entrepreneurs before him, Trevor couldn't convince others of this. He spent nearly 4 years approaching major radio manufacturers like Philips and Marconi but to no avail. But luck often plays a significant part in the innovation story – and this was no exception. The idea came to the attention of

some TV researchers and the product was featured in 1994 on a BBC TV programme, Tomorrow's World, which showcased interesting and exciting new inventions.

Among those who saw it and whose interest was taken by the wind-up radio were a corporate finance expert, Christopher Staines, and a South African entrepreneur, Rory Stear. They bought the rights from Baylis and received a UK government grant to help develop the product further, including the addition of solar panel options. In South Africa, the details of the invention were featured in a new broadcast and heard by Hylton Appelbaum, head of an organization called the Liberty Life Foundation, who saw the potential. Even in relatively rich South Africa, half the homes have no electricity, and elsewhere in Africa the problem is even more severe.

Liberty Life is a body set up by a major South African insurance company, and Anita and Gordon Roddick, the socially-conscious owners of the Body Shop. Part of the work of the Foundation is in providing access to employment for the disabled and a third of the company's factory workers are blind, deaf, in wheelchairs or mentally ill. Through Applebaum, Liberty Life provided the US\$1.5 million in venture capital that founded the company. Baygen Power Industries (from Baylis Generator) was set up by Staines and Stear in 1995, in Cape Town; 60% of the shares were held by a group of organizations for the disabled, a condition of Liberty's support. Technical development was provided by the Bristol University Electronics Engineering Department. Shortly thereafter production of the radio began in Cape Town by BayGen Products PTY South Africa.

It came on the market at the beginning of 1996 and one year later around 160 000 units had been sold. Much of the early production was purchased by aid charities working in Rwanda and other African countries where relief efforts were underway.

The impact was significant. Although appearing basic and low-tech, there is a surprising amount of invention in the product. Baylis filed no less than 13 patents covering the mainspring and gears that drive a little dynamo. The spring mechanism is not a simple clockwork but is more closely related to the kind used in rewinding auto seat belts. A double-spool mechanism keeps its tension constant, which is crucial, and the gearing is sophisticated.

Baygen continued to develop products around the energy needs of developing countries including wind-up torches and small generators. The company renamed itself in 1999 as the Freeplay Energy Group and took the original concepts into a wide range of new product areas.

Although founded on strong social entrepreneurship principles, the business grew through expanding markets in both developing and advanced economies. At an early stage in their life they realized that dependence on government, international and charitable aid providers posed problems in terms of business sustainability and in 1997, following investment by the US General Electric Company, they

began diversifying into commercial markets, modifying the product designs to suit this shift. One of the casualties in this shift was the Cape Town factory – after five years manufacturing was outsourced to plants in China where labour costs are lower.

The company was commercially successful, selling over 3 million units of their basic radio models, and raising an additional US\$45 million in capital. Product development embraced a wider range of power options including solar cells, and a range of applications including torches and lighting, small-scale generators and mobile-phone chargers. Emphasis remained on replacing battery and fixed-line power applications with rechargeable or self-generating approaches – an approach which, given increasing concerns about sustainability in the advanced industrial economies, opened significant possibilities for market growth. Their eponymous product was the Lifeline radio, a multi-band, self-powered radio.

The declared mission of Freeplay Energy plc was to democratize energy, and it did this through product development and strategic alliances with partners that brought compatible technology and market leadership.

All of Freeplay’s business practices were shaped by Six Core Ideologies:

- Results Orientated – Delivering on promises to shareholders and partners.
- Leading-edge – On the edge of technology and business practice.
- Proactive – Showing leadership and taking the initiative wherever possible.
- Empowering – Seeking to enable all our stakeholders to achieve their goals.
- Responsible – Being responsible towards our employees, the environment and the communities we touch.
- A Friend and Partner – Taking a positive attitude to developing partnerships and friendships based on trust.

In 1998 the Freeplay Foundation was established as an extension of the Group’s commitment to empowerment and development. The Foundation operated as an independent organization with its own board of trustees, but still received an annual grant from the Freeplay Energy Group with which it shared some managerial and administration resources. The balance of funding was raised from various donors and used to support a wide range of development and implementation projects. Working primarily in Africa, the Freeplay Foundation promoted access to radio broadcasting in rural and remote areas through alternative energy solutions. It sought to support economic progress in communities, sharing vital information regarding disease, famine and conflict. It did this by continuing the original wind-up radio mission – supporting or initiating projects that harness appropriate and alternative energy solutions that deliver information and education through radio broadcasting.

The Foundation facilitates access to specialists who can provide the four components vital to the sustainable success of any radio communication initiative:

- Software – quality radio programming directed at a targeted audience.
- Hardware – radios that allow sustainable listening access to all groups.
- Structured distribution – a planned and coordinated distribution of radios, in consultation with communities.
- Project-monitoring and evaluation – measuring effectiveness against set objectives.

The scope for application was wide, since it meets the basic human need for communication and enables a wide range of information, education and community-building activities. Some examples from the radio side of the business include:

- A project (funded by various development agencies) using communication satellites and FM radio technology to communicate weather, agricultural and health information to nomadic communities and villages across Africa. The pilot is built on a model in the village of Bankilare, outside Niger's capital, Niamey, and combines a WorldSpace satellite receiver, a laptop, Freeplay radios, a transmitter, solar panels and other equipment. Information is downloaded from the Internet via a satellite connection. It is then rebroadcast via a community FM radio station powered by solar energy. Villagers, nomads and farmers living in remote and poorly served areas receive broadcasts on Freeplay radios. The aim of this project is to provide timely information on the weather, with implications for crop-planting and livestock care, availability of water, market prices for crops, associated diseases, health and disaster mitigation. This is just as important for the nomad as for the farmer.
- In Madagascar the Ministries of Communication and Health, working with various aid agencies, developed a radio drama series for women's listening clubs in Madagascar. Wind-up radios, funded by Rotary, were distributed to clubs who provided regular feedback on the programmes. The series is aimed at improving health education, family planning and AIDS prevention. Similarly in Ethiopia people living in remote communities in Ethiopia's Harar Province are tuning in twice weekly to a radio serial drama aimed at creating awareness and prevention of HIV/AIDS – a project funded by the Centres for Disease Control and Prevention.
- According to the Zambian Ministry of Education (MOE) 800 000 Zambian children are unable to attend school. They cannot afford it, are orphans, live too far to walk to school or are girls who are kept at home. The attrition rate of teachers poses another problem – 2 teachers are dying of AIDS for everyone who is trained. The MOE, together with the Educational Broadcasting Services, is using interactive radio instruction to help fill the educational void. Each morning thousands of primary school learners listen to the lively English and maths programme, Learning at Taonga Market, on the radio. To assist with the lesson, adult mentors from the community are trained to use radio as a teaching aid. The Peace Corps in

Zambia purchased Freeplay radios for their volunteers to distribute. These volunteers are trained in the mentoring process and then train community mentors, enabling the programme to reach deep rural areas. In addition, Rotary UK is helping to raise funds to bring more radios to community schools.

- In early 2000, hundreds of thousands of Mozambicans were displaced by catastrophic flooding. One of the items that people lost were radios – often the only access to information. Various donor agencies including the Freeplay Foundation distributed over 7000 radios and a daily programme called Ndhambi was created in the local language, Shangani. Ndhambi covered information on health, sanitation, hygiene, the location of landmines, obtaining lost ID documents and title deeds, governance, tracing and contacting lost family members, as well as agricultural assistance, all of which were of great importance during the post-flood period. During the crisis in Kosovo in 1999, DFID and the ICRC purchased over 40 000 Freeplay radios to distribute to refugees on the move and in camps in Albania and Montenegro. Here they played a part in helping to find missing relatives and to inform of the location of landmines, contaminated water supplies and booby-trapped villages.

In 2008, Freeplay Energy was sold to Delhi-based businessman, Devin Narang. According to Kristine Pearson, CEO of the Freeplay Foundation, Narang refused to share design or IP rights with the Freeplay Foundation. This was the start of many difficulties with the traditional partnership between the for-profit arm of Freeplay; Freeplay Energy, and the Freeplay Foundation.

Prior to 2008, the Freeplay Foundation had been working on plans for an MP3-enabled radio. Because of continued affiliation with Freeplay Energy, the Freeplay foundation could no longer control the feature set, price, or even where it was sold. For a product that was to be used by the rural poor, the design of the new MP3/radio had to be end-user orientated. Vital circumstances of use had to be accommodated for, such as living conditions, levels of literacy and technological inexperience. As Pearson describes it, this level of design brief control was not possible whilst the Freeplay foundation was so intrinsically connected to Freeplay Energy. Further, Pearson states that Freeplay Energy became an increasingly unreliable supplier, and products that had been either fully or partially funded by the foundation, were now dependent on Freeplay Energy.

It was at this point in April 2010, that the Freeplay foundation rebranded as 'Lifeline Energy', in part to separate themselves from any third party company or brand, and in part to represent their expanding product offering and aims. Lifeline Technologies, a for-profit product development and trading arm was created. The Lifeline brand represents an unusual business model, in which Lifeline Technology's profits accrue to the charity, Lifeline Energy.

In August 2010 Freeplay Energy was put into administration, and eventually, liquidation, whilst still owing funding to the charity. Despite this, In September 2010 the Lifeplayer MP3 player was launched by Lifeline; a technology that further developed Lifeline's humanitarian mission.

Research taken out at the very beginning of Freeplay/Lifeline's humanitarian work had showed that in rural areas of sub-Saharan Africa, even those families that had radios had issues of hierarchical access. Men would own the radios, and would often remove the batteries in order to preserve them when not in use; thus controlling access to women and children's' listening. This had been countered somewhat by the original wind-up radio, (the need for batteries being negated), but could be further countered by negating the need for radio signal. The Lifeplayer was designed specifically for humanitarian use; with the intention that it would be used for group listening. Content relating to women's health, school lessons, conservation and modern farming techniques, market information and economic empowerment can be pre-recorded, and listened to again and again by the relevant groups. A significant capability of the Lifeplayer is that it can be heard by large groups of people - one of its most competitive features.

The Lifeplayer is designed specifically to be purchased by schools, NGO's, businesses and other institutions, rather than by individuals. Whilst this has obvious implications to accessibility, Lifeline also places significant resources onto partnerships with ministries of education, putting a heavy focus on collaboration. The intention is that the bottleneck difficulties associated with delivery and implementation in developing markets can be countered by these partnerships.

Lifeline have also produced the 'Prime' radio - a development on the original 'Lifeline' radio. The Prime incorporates both solar and wind-up technologies. Design has also been driven by information received from focus groups. These developments represent the acknowledgement that the end-users of these products are often orphaned children; focus was on the need for the new design to be a bright colour, easy-to-carry and robust.

Future projects include a next generation Lifeplayer, with video capabilities. This will become increasingly viable as screen technologies advance and become less expensive.

Case Study Questions

1. How could you reconcile the social agenda – make radios freely available – with the commercial challenges of running a business? What problems do you think Freeplay face in trying to sustain the business?
2. Jennifer Peters has an idea for water treatment which could help provide clean drinking water to millions of people in Africa. Using ideas from the Freeplay story, what advice would you give her to help her take this forward? And what should she watch out for?
3. Do you think it's easier or harder to create a sustainable business venture with a social entrepreneurship idea? Why?