

# Building the Hydrogen Economy

Dr Gary Mc Darby

“Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has.”

Margaret Mead



Goalcast

Liberia, officially the Republic of Liberia, is a country on the West African coast. It was used as settlement for slaves after slavery ended. When the ex-slaves arrived, they started looking for land to settle on. The locals got agitated and, inevitably, a civil war broke out.

Children were being used as soldiers during this period. The reason behind this was the fact that “no one wants to kill a child”. Rivals were hesitant to attack the child because of their innocence.

Dr Mc Darby was in Liberia at the time and witnessed these children being taken advantage of. During his stay, he encountered a child soldier named Prince who was suffering from PTSD and having trouble sleeping at night. Mc Darby had a Sony Walkman – a music player made in the 1990s. Suddenly, he had the idea to let Prince listen to music on his Walkman as a way of helping him sleep at night. After seeing that this was effective, he realised that technology could play a profound role in helping people.

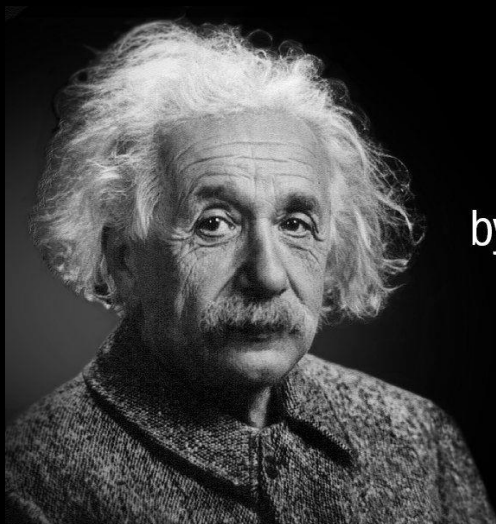


As a result of this moment of realisation he decided to team up with other scientists including psychologists, engineers, artists and computer scientists.

### Innovation

They developed a two-player video game which improves one's ability to relax during moments of stress and anxiety. The aim of the game is to relax as much as possible – the more you relax, the faster your dragon flies and wins the race. The better you become at the game, the better you become at handling stress.

What Dr Mc Darby learned from this experience is that bringing people from different faculties together can encourage innovation. The reason for this is the fact that all these people were experienced in various areas.



**Everybody is a genius.**  
But if you judge a fish  
by its ability to climb a tree,  
it will live its whole life  
believing that it is stupid.

– Albert Einstein

Innovation, as Dr Mc Darby stated, is an intrinsic part of being human. In life we either “Innovate or Liquidate”. Innovation can start from anywhere and by anyone. It is necessary for change and is particularly important during a crisis

Good innovation is almost measured by how much resistance it creates. As George Bernard Shaw once said;

“All great truths begin as blasphemies”

## The Hydrogen Economy



Hydrogen is a colourless, odourless element which is also very light. Hydrogen is the only atom for which the Schrödinger equation has an exact solution. It is the most abundant element in the universe. It burns with an invisible flame and was used as fuel for aircraft. The production of these planes was stopped in the 40's as a result of the Hindenburg crash in 1937.

The main sources of hydrogen are:

Water

Fossil Fuels

Biomass reactions

## Chemical processes

For more information on Hydrogen Sources visit:

<https://www.energy.gov/eere/fuelcells/hydrogen-resources>

Uses of hydrogen are:

Fuels for flights

Fuel Cell vehicles

Energy autonomy

For more information on Hydrogen

<https://energies.airliquide.com/resources-planet-hydrogen/uses-hydrogen>

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