Example of project manager's present vision: SmartH project

SMART H2 is a demonstration project for hydrogen fuelled vehicles and vessels. The project will test various types of hydrogen-fuelled company cars and other equipment that runs on hydrogen, including a hydrogen auxiliary power unit for a tour ship run by Elding. The project also aims to demonstrate the operation infrastructure for compressed hydrogen and develop the distribution system for hydrogen, for example by organizing and running a small-scale hydrogen transport service.

The project is based on the vision that Iceland can in the future use hydrogen made with local renewable energy and water as a transport fuel. This will enable the country to cut its carbon dioxide emissions and replace imported fossil fuels with a locally made fuel. The tests are an important learning phase in realizing the large-scale introduction of hydrogen. A shift to hydrogen fuel will require the development of new equipment and the introduction of a partially new fuel delivery and production infrastructure.

Icelandic New Energy (INE) is the initiator of the project. One of INE's major shareholders is Vistorka, a company which serves to unite business venture funds, key energy companies, academic institutes and the Icelandic government.

SMART H2 is the second major test project in Iceland. It is rooted in the experience gained in the use of hydrogen fuelled public buses in the ECTOS and HYFLEET: CUTE projects, also initiated and run by Icelandic New Energy (INE) and run partly on EU funding. SMART H2 aims to extend the experiences gained in public transportation to other types of cars and to the shipping fleet. It is also different from the previous projects in the sense that SMART H2 is funded domestically by Vistorka and the Icelandic government.

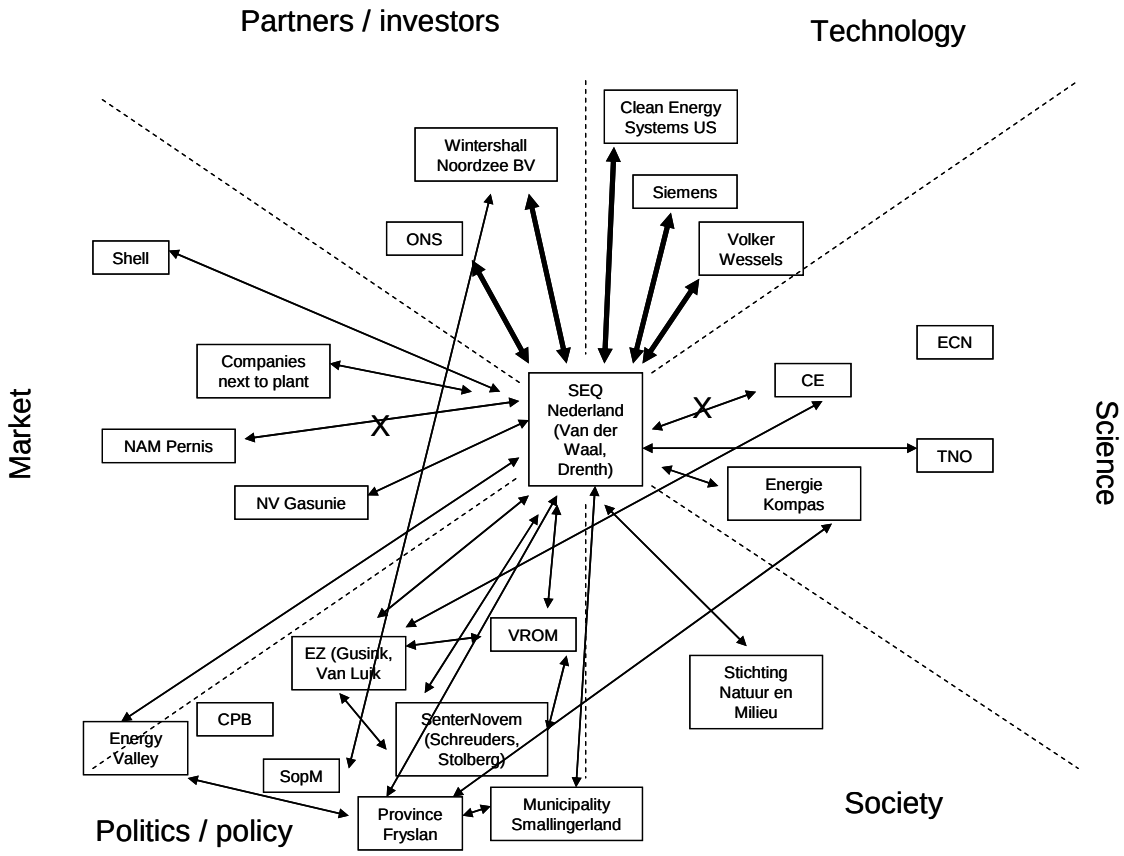
The project consists of three paths:

- SMART H2 ICE path focuses on company and rental cars. These cars run on conventional internal combustion engines (ICEs), which represent an intermediate step toward the shift to fuel cell cars. The cars will be retrofitted Toyota Prius vehicles that use hydrogen instead of gasoline. The cars will fill up at Shell Hydrogen's hydrogen station. The aim of the SMART H2 ICE path is to test the hydrogen distribution options, collect data on vehicle and station performance, collect drivers' experiences, and validate the market potential in Iceland.
- SMART H2 FC path focuses on fuel cells. The first demonstration project within this path will test an auxiliary power unit based on a hydrogen hybrid engine. This will be done on the whale-watching boat Elding. The engine will produce the electricity needed on board. This demonstration aims to develop the auxiliary power unit into a marketable product for other vessels or other types of users. The path will also create awareness of hydrogen based technology among the hospitality industry and tourists. Also fuel cell powered cars will be tested within this path at a later stage.
- SMART H2 Research will focus on assessing the economic, environmental and social effects of using hydrogen as the main fuel in Iceland compared to other alternative fuels. It will also compile data on user experiences, performance, reliability, operational design and operators' experiences.

Three closely co-operating project managers from Iceland New Energy (INE) are in charge of the different paths. But the communication can follow different lines. Some partners only communicate within one path, such as the test of fuel cell and hydrogen on boat, while others have contacts across the whole project

The main parties involved are providers of materials and technology (Orkuveitan, Daimler Chrysler, fuel cell cars, Quantum: ICE cars, other vehicle providers, fuel cell provider, the users of the equipment (e.g., Hertz, Aloca, Landvirkjun, Elding boat and tour operator), administrators and regulators, and different research institutes and universities involved in the research. Meetings with users, suppliers and other stakeholders have been ongoing since September 2006. The companies that buy or lease vehicles in the tests will need to agree to provide data for the research conducted by INE.

Example of social network map from the ZEPP project



Synthesis writing example from the ZEPP project

Pathway narrative. Reviewing from 2010.

A lot has happened the last 3 years. All technical problems are solved, also by attracting new experts and good partners. New building drawings are made with support from the petrochemical industry. This was possible by labeling the part of the plant above ground level as petrochemical plant. Even though the concept was completely new, Lloyd's Register BV has approved the new drawing of the plant. The designers further have solved all security and leak aspects which occurred with the injection on this big scale. Because we were working with reliable partners and had a good and detailed design, many relevant institutions showed confidence in the project and did not have many objections.

Also financial businesses are fixed within the last years. Firstly we had some difficulties in getting good interest because the bank did not know the concept. This increased the costs of electricity produced. But luckily this was solved within a few years. The financial risks for investors were decreased which resulted in lower financing costs. Firstly uncertainty existed about subsidy structures in the Netherlands because the financial gap of electricity produced with our technology was not subsidised. Due to this we were obliged to sell our nitrogen and residual heat and were able to maximise the use of possibilities of our location.

We have thought about moving the whole project to the UK where we had found an onshore gas field of 800 million square meters that contained too much CO_2 then desired for commercial gas recovery. But then the Dutch government changed their subsidy structure.

Firstly the Dutch government was afraid in appointing big subsidies to our project because we were a new and unknown partner. We have solved this by attracting some big and well-known partners to the consortium. Because the danger existed that these new big partners would use the project to buy a innovative technology for a low price, we have secured our technology by many contracts and patents. Apart from that we have started a strong lobbying-process by joining working groups, conferences, etc. to let policy-makers get to know our technology-concept and project.

At the time that our plant was running for a few years, several policies and legislation existed about CO_2 storage. The years before we have worked around the existing lacks in policy by labeling the underground part of the plant as gas recovering project. This connected us to the mining legislation and not to the environmental legislation.

The public perception of our project has been managed correctly. The local inhabitants didn't know anything about our plans before we started. But with the supply of information we have increased the local knowledge of the project. Both inhabitants as governments had questions about safety because they were familiar with the accidents that happened with CO_2. But we have performed a research towards the communication strategies and had a worked out a set of arguments which convinced people that accidents could not occur with this location for CO_2 storage. The communication-study mainly showed that the North of the Netherlands has a specific mentality which should be taken into account. An important aspect of the area were the local costs and benefits of the project. That is why we have hired many local constructors, architects and employees.
Because we had adapted our communication campaign to the regional mentality, we gained a supply market for our residual heat. The local inhabitants and companies felt strongly connected to the project and wanted to receive our residual heat. Without any problems we thus give away our 100 MW of residual heat. We therefore didn't need to build a cooling tower or dump heat in the surface water any more. We did build a cooling tower though of less then 35m on the ground we could buy from our neighbour.