



HYACINTH



Hyacinth

Hydrogen Acceptance in the Transition Phase

Daniel Esteban Bechtold

Gema Alcalde Ranz

Gema Rodado Nieto

Jesús Javier Martín Pérez



This project has received funding from the Fuel Cells and Hydrogen Joint Undertaking (FCH-JU) under grant agreement N° 621228



Content:

1. PUBLIC AWARENESS AND ACCEPTANCE

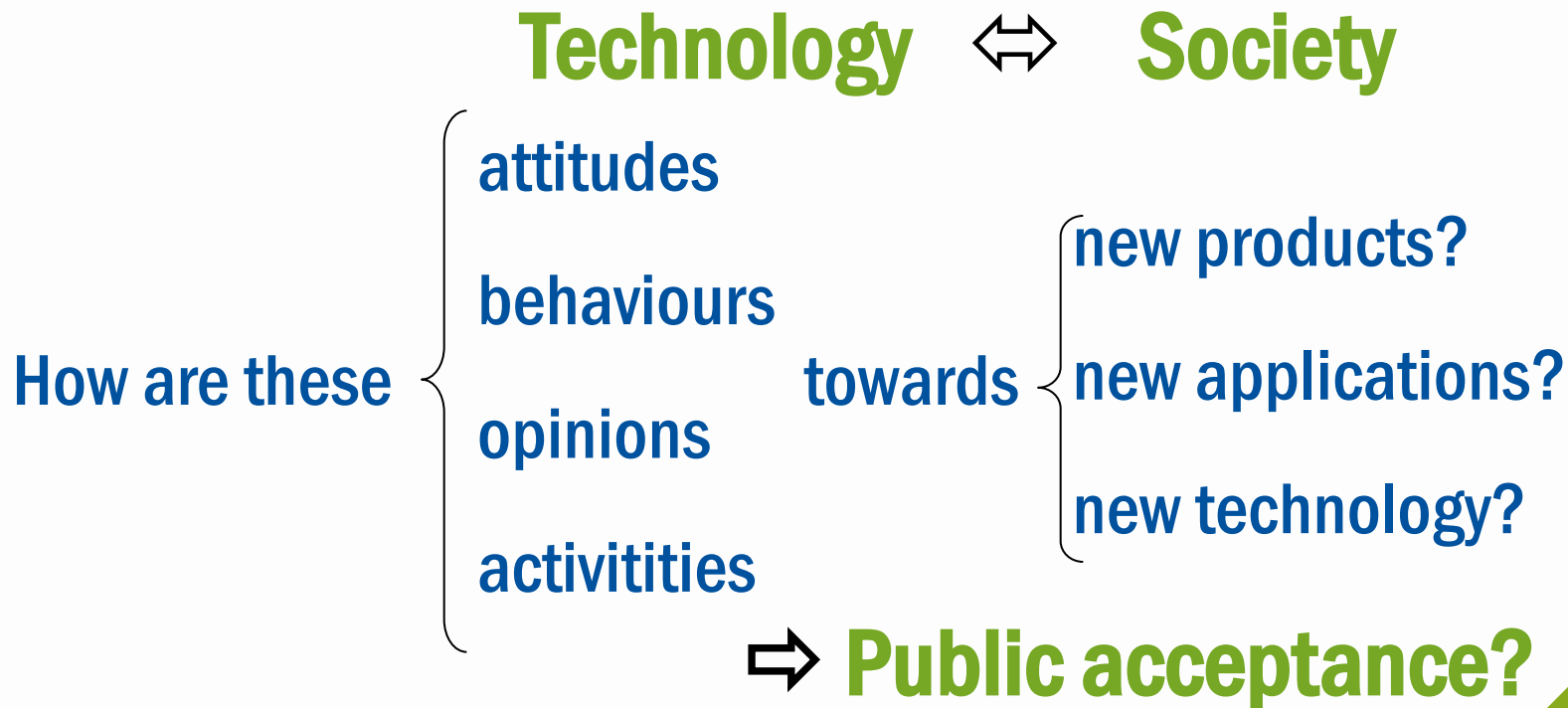
2. WHY MEASURING AND INFLUENCING ACCEPTANCE

3. THE CONTRIBUTION OF THE HYACINTH PROJECT

4. HYACINTH RESULTS: STUDIES AND TOOLBOX

Public awareness:

Are attitudes, behaviours, opinions and activities that comprise the **relations** between the general public or lay society as a whole to scientific knowledge.



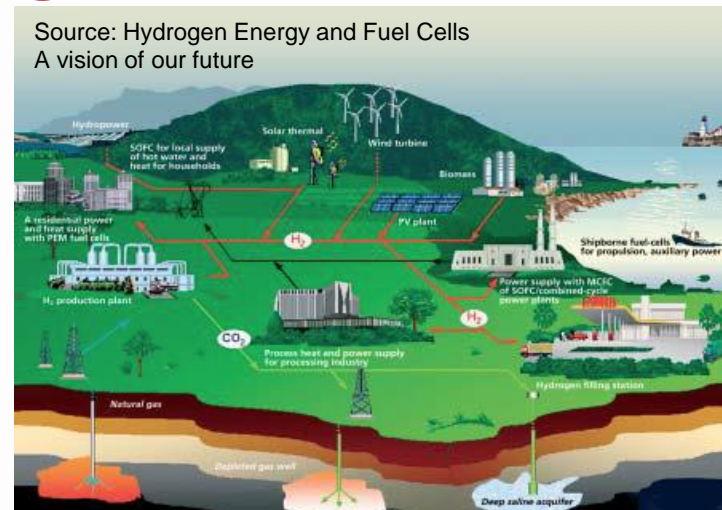
Public acceptance: objective

Main aim => To link technology and society.

How? => Social research, to know the state of public and stakeholder acceptance and the factors that influence them

The aim is to achieve a **better knowledge** that helps to optimize the **management** of a **technology transition**

⇒ **Hydrogen?**



Why measuring acceptance?

It is a key consideration to deploy a new technology

Because:

No broad experience

No feedback

Not many images...

⇒ Hydrogen?
⇒ Fuel cells?
?
?

So, there is a need for a development of a good understanding of the conditions of societal acceptance of FCH technologies as an essential element to support the establishment of these conditions in Europe.

Public acceptance: remarks

- Awareness and acceptance could vary along time.
- Awareness and acceptance could also influence and be influenced by factors and relevant actors
 - ⇒ So it is important to identify what level of acceptance is needed and when.

So far, research has shown that a **supportive acceptance** will be necessary in a **transition phase** of the technologies and the strategies to successfully establish a market.

Public acceptance of FCH: questions?

What has to be accepted? ⇒ HFC based applications

Who has to accept? ⇒ General public and stakeholders

When is acceptance needed? ⇒ Market approach

Implementation process

(transition phase)



What level of acceptance is needed? ⇒ Support

⇒ **Hyacinth project**

HYACINTH: HYdrogen ACceptance IN the Transition PHase

- **Funded by the FCH-JU in call 2013 (SP1-JTI-FCH.2013.5.3 Social acceptance of FCH technologies throughout Europe)**



This project has received funding from the Fuel Cells and Hydrogen Joint Undertaking (FCH-JU) under grant agreement N° 621228

- **Started in September 2014 with a duration of 30 months**
- **Aims to gain a deeper understanding of the social acceptance of hydrogen technologies across Europe.**

HYACINTH: objectives

- **Identify and understand awareness and acceptance** of hydrogen energy and FCH technology and perceived potential benefits in the general public and at selected stakeholders.
- **Identify the main drivers** of social awareness and acceptance of FCH technologies in order to provide recommendations.
- **Support stakeholders** by providing a social acceptance research toolbox.

HYACINTH: 11 Partners

- Centro Nacional del Hidrógeno (CNH2) – Spain
- I PLUSF France – France
- Fraunhofer-Institut für System- und Innovationsforschung ISI – Germany
- Aberdeen City Council – United Kingdom
- University of Sunderland – United Kingdom
- Centre for Energy, Environment and Technology (CIEMAT) – Spain
- Sustainability Research Institute (SRI), University of Leeds - United Kingdom
- CIDAUT Foundation – Spain
- Razvojni Center za Vodikove Tehnologije (RCVT) – Slovenia
- NORSTAT Services GmbH (NORSTAT) – Germany
- I PLUSF España – Spain



VALUABLE ANSWERS FOR IMPORTANT DECISIONS.



HYACINTH: background

Past research ⇒ two findings:

1. Public attitudes towards FCH vary across populations and time, influenced by a complex set of factors.
2. Gathering reliable data on the public attitudes towards FCH technologies requires careful considerations.

Analysis on the state of acceptance of FCH technologies have been extensively done. But deep analysis on the public and stakeholders acceptance, identifying the dynamics of the process as well as the factors influencing expectations, are rare.

HYACINTH: background

Past research (recent)

- ⇒ Showed a general positive attitude and lack of relevant opposition (CHIC).
- ⇒ Regional stakeholders play an important role in getting the system run and keeping it running.
- ⇒ The acceptance changes with time
- ⇒ Acceptance can actively be influenced by managing the implementation process.

HYACINTH: Where? and What?

Where?

- 7 European countries: Belgium, France, Germany, Norway, Slovenia, Spain and United Kingdom.
- Different degrees of FCH support, including the “front runners”
- Distributed across Europe

What?

FCH Applications:

- Transport
- Stationary – domestic
- Special markets

HYACINTH: Methodology

- Analysis of the visibility of FCH technologies in society (projects, policies, stakeholders and past acceptance studies and projects).
- Interviews on awareness of FCH technologies in the general public (quantitative interviews – online survey): 7,000
- Interviews on acceptance of hydrogen energy of stakeholders (quantitative interviews – online panel): 280
- Personal interviews (qualitative) on hydrogen energy and FCH technology acceptance at selected stakeholders focused on ongoing and recent demo projects: 175

HYACINTH: situation

Base analysis done on projects, policies, stakeholders, and past acceptance studies and projects.

Methodological design done and questionnaires completed and implemented in on-line tools.

General public information obtained from **7,000 panelists**, 1,000 per country (Apr– May 2016)

Stakeholders quantitative information obtained from 5 countries – FR, DE, SL, ES & UK (Apr – May 2016), **297 respondents**

Stakeholders qualitative personal interviews carried out in 5 countries – FR, DE, SL, ES & UK (Jan – May 2016)

HYACINTH: situation

Expected work done with minor delay.

Data collected from general public and stakeholders (quantitative and qualitative).

Problems found:

- Response in some countries were lower than expected for stakeholders (SL, FR in the quantitative part), so it was balanced by more respondents from the other countries.
- Although trying to balance stakeholder groups share between countries, it was difficult to achieve.

HYACINTH: expected results

Analysis of the collected data ongoing ⇒ two studies will be published (autumn 2016):

- Report on results of the stakeholder survey
- Integrated report on general findings on public acceptance

Both will feed a Social Acceptance Management Toolbox, which is being developed and will be released early 2017.

HYACINTH: toolbox

- It is a software, based on the HYACINTH studies of general public and stakeholders and also in other external information: policy support mechanisms, lessons learned / best case studies, etc.
- Its main aim is to support stakeholders, by providing information and methodologies (factors) to facilitate decisions on promotion activities, market preparation, and effective policy support mechanisms particularized for a given European region and a certain technology.

HYACINTH: Conclusions

- Public acceptance is a key issue for a technologies transition, also for FCH technologies.
- The main aim => To link technology and society through social research to get an “image”.
- It is important also to know the factors behind that “image”.
- The HYACINTH project aims to study the public acceptance on hydrogen technologies of general public and stakeholders in the transition phase (between demonstration and commercialization) in seven European countries and for different applications.

HYACINTH: Conclusions

- **HYACINTH Methodology:**
 - Survey 7,000 general public in 7 countries
 - On-line questionnaire 280 stakeholders in 5 countries
 - Personal interviews 175 stakeholders in 5 countries
- **Data collection done! (Thank you!)**
- **Analysis ongoing**
- **Results: two studies and a toolbox, software based on the studies and other informations to support stakeholders by providing information on factors that influence awareness and acceptance to facilitate decisions.**

HYACINTH: Hydrogen Acceptance IN the Transition pHase

Thank you for your attention!

www.hyacinthproject.eu
info@hyacinthproject.eu



This project has received funding from the Fuel Cells and Hydrogen Joint Undertaking (FCH-JU) under grant agreement N° 621228