THE ROLE OF TRUST AND FAMILIARITY IN RISK COMMUNICATION

International Conference on Hydrogen Safety

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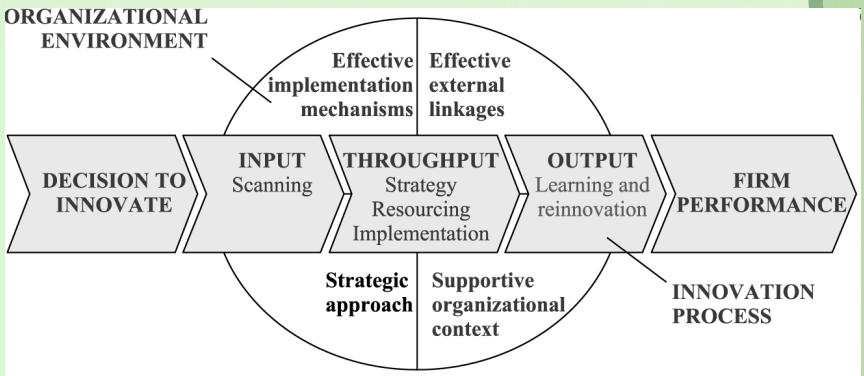
Umweltwissenschaft Bürgernah

Introduction to

SOCIAL ACCEPTANCE AND RISK PERCEPTION IN INNOVATION

Umweltwissenschaft Bürgernah

Innovation Process



Source: Based on: Tidd *et al*. (2001); Kemp *et al*. (2003); Teece (1996)

Public Acceptance

Public acceptance

"the chance to get the explicit or implicit consensus of a group or person for specific concepts, measures, proposals or decisions" (Kaiser et al. 2004)

Influencing factors

- general values and norms
- cultural practices in the handling of risks
- current incidents
- perception of risk

Risk Perception

Risk perception

„sensual or rational, individual or collective perception process and the connected identification, analysis and verbalisation of risk" (Kaiser et al. 2004)

Perception of risk is influenced by:

- the perceived context of the risk situation
- the perceived characteristics of damage
- individual attitudes

Psychometric Paradigm

Dimension	Conditions Associated with Higher Perceived Risk	Conditions Associated with Lower Perceived Risk
Catastrophic Potential	Fatalities or injuries grouped in time and space	Fatalities or injuries distributed randomly
Severity of Consequences	Large numbers of fatalities or injuries per event	Small numbers of fatalities or injuries per event
Voluntariness	Involuntary exposures	Risk taken at one's own choice
Controllability	Little personal control	Some personal control
Familiarity	Unfamiliar risks	Familiar risks
Understanding	Lack of personal understan-ding of processes involved	Personal understanding of processes involved
Scientific Uncertainty	Unclear to scientists	Well-known to scientists

Central facts about

RISK PERCEPTION OF HYDROGEN TECHNOLOGIES

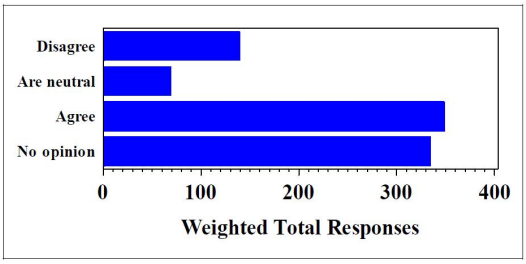
Catastrophic Potential

- only 1,6 % of hydrogen bus users in Germany associate „hydrogen bomb“ with hydrogen technology (Altmann et al. 1998)
- 74 % of passengers on-board of fuel cell buses in Sweden feel save with H_2 technology (Haraldsson et al. 2006)

U.S. survey:

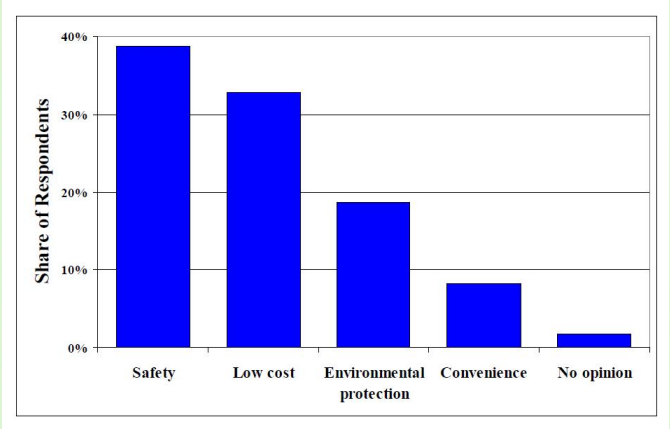
„Hydrogen is as safe as gasoline and diesel fuels.“

(Schmoyer et al. 2006)



Safety

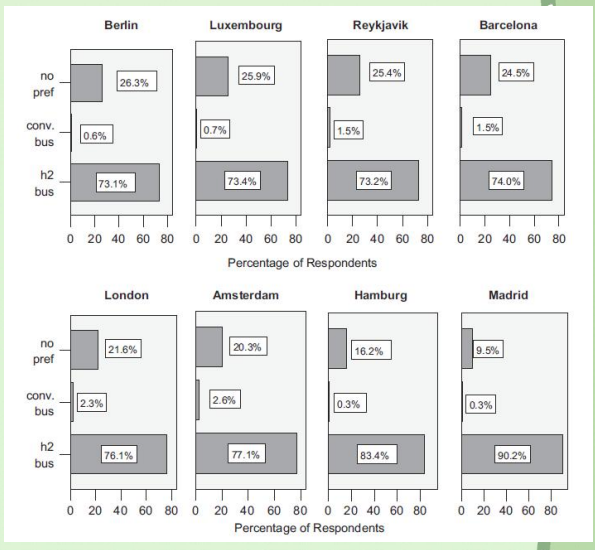
„Safety“ is the most important issue in the individual assessment of hydrogen technology.



(Schmoyer et al. 2006)

Voluntariness

If people can choose between a conventional bus and a hydrogen bus under the same conditions **they choose the hydrogen bus.**



(Heinz & Erdmann 2008)

Familiarity with hydrogen technology

- Importance of personal experiences
- Possibilities for people to get familiar with a hydrogen vehicle are still very low

Influence on risk perception

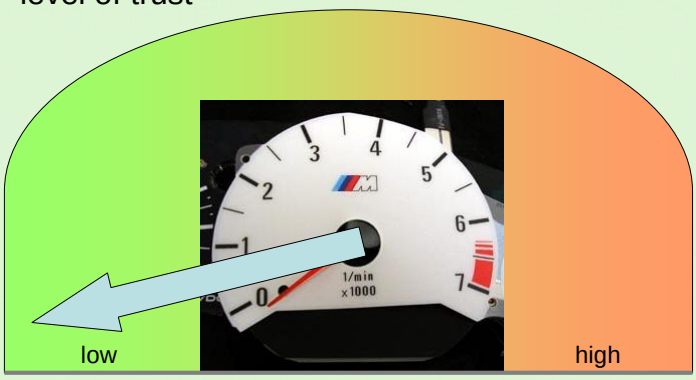
- students on board of a hydrogen bus show greater acceptance and are more likely to associate “hydrogen” with positive assessments (Altmann et al. 1998)
- unconditional support to hydrogen technology increases after large-scale introduction of hydrogen buses (O’Garra 2005)

Introducing hydrogen technologies into society

THE ROLE OF TRUST

Modulation of risk perception

- extent of personal concernment
- intuitive risk-benefit assessment
- level of trust



Trust

- trust in the communicating institutions plays a central role for the **perceived credibility** of the provided information
- especially in situations of **information overload and knowledge-gaps**, people are unable to assess whether risks are severe and true

Trust leads to

- lower risk perception
- cooperative attitudes and networking
- effective reactions in conflict situations
- positive reputation and an improved market position

Trust in hydrogen technologies

A review of existing hydrogen acceptance studies reveals:

- lack of information regarding the level of trust in institutions working in the field of hydrogen technologies
- participants of focus groups questioned the will of government and industry to achieve the change towards a hydrogen society

Experiences from other technologies

Biotechnology	
Medical doctors	75 %
Scientists	73 %
Consumer organisations	70 %
Industry representatives	53 %
Government	50 %

(Eurobarometer 2004)

Nanotechnology	
Consumer organisations	92 %
Scientists	92 %
Medical doctors	84 %
Industry representatives	32 %
Government	23 %

(Zimmer et al. 2008)

German project

HYTRUST

HyTrust project

Project duration: 09/2009 – 08/2013

Funded by: Federal Ministry of Transport (BMVBS)/ NOW

Objectives:

1. What is the current state of public acceptance in hydrogen technology?
2. How familiarity with hydrogen technology and trust in actors who are engaged in technology implementation will arise in the public?
3. How can the change towards a hydrogen society in mobility sector be achieved?

HyTrust partner

Project management:
Independent Institute for Environmental Concerns

Cooperation partner:
Innovation Centre for Mobility and Social Change

Spilett new technologies

Potsdam Institute for Climate Impact Research

European Climate Forum

Institute for Transportation Design

Project outline

Analysis of the public acceptance	Trust building and knowledge management	Development of H_2 scenarios	Project management
A 1: Actors and perspectives A 2: Focus groups and interviews A 3: Public survey A 4: Media analysis	B 1: Consensus conference B 2: Case studies on demonstration projects B 3: Knowledge transfer and management	C 1: Survey of H2 scenarios C 2: Climate protection impacts C 3: Economic modelling C 4: Scenario-Workshop C 5: User scenarios	D 1: Final report, dissemination D 2: Project coordination / project management

CONCLUSIONS FOR RISK COMMUNICATION

1. Generate familiarity with hydrogen technologies by means of demonstration projects
2. Communicate transparently from the very beginning
3. Install public participation processes to increase the level of trust
4. Involve trusted institutions into the risk communication process
5. Start immediately with the development of coherent communication strategies

Thank you for your attention

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