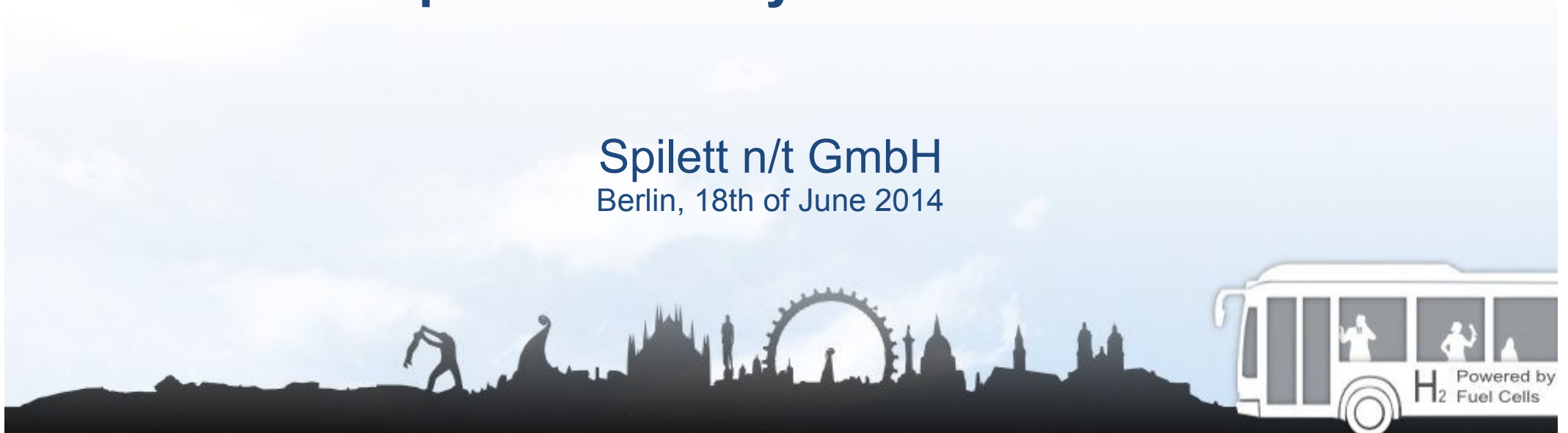


CH₂IC

Clean Hydrogen in European Cities (CHIC)
Influencing factors to the acceptance process of FCH
technologies in public transport (deliverable D3.5)

Excerpt of the study for Phase 2 Cities

Spilett n/t GmbH
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Content

Introduction to the excerpt

- Motivation for this exceptional report
- Research approach of the CHIC study on acceptance

Key learnings for Phase 2 cities

1. Manage the acceptance process
2. Identify and define regional added values
3. Take advantage of the regional context
4. Use the power of networks to initiate the project
5. Use the power of networks to ease project implementation
6. Consider the human factor
7. Understand the importance of expectation management
8. Reflect on project progress
9. Establish a continuous information exchange within the project environment

Summary



Motivation of this exceptional report

- It is one of the goals of CHIC to forward the learnings of the phase 0 and phase 1 cities to phase 2 cities. The learnings refer to technology performance, project setup and technology implementation.
- The CHIC study „*Influencing factors to the acceptance process of FCH technologies in public transport*” was conducted by the CHIC partner Spilett to provide a detailed insight into the acceptance process in 5 different European regions. The study is public and freely available (please send a request to: hoelzinger@spilett.de).
- In March 2014 the FCH-JU requested an excerpt of the study’s findings focussing on the key learnings for phase 2 cities. This request has been made in the context of the planned FHC-JU commercialisation study for FCH buses in public transport.



Research approach of the CHIC study on acceptance

Target

Identify influencing factors on the acceptance of FCH technologies in public transport and understand their relevance in the regional context.

Interview partners

Industry and regional stakeholders (core project team, regional project environment), bus drivers, citizens/ bus users in 5 European regions: Hamburg (GER), Huerth/ Bruehl (GER), Oslo (NOR), Bolzano (IT), Brugg (CH)

Methods

- qualitative face-to-face interviews
- 185 interviews
- More than 11' 000 minutes of interviews

Interview period

August 2011 to March 2013



Key learnings for phase 2 cities

1: Manage the acceptance process

Acceptance is a process that evolves over time. The acceptance process can and must be managed to ensure successful implementation

- Ensure acceptance in the beginning and maintain acceptance throughout project implementation, keep in mind that the acceptance process outlives the projekt and influences future commitment.

Focus on the acceptance processes of project partners and regional stakeholders, as their support and goodwill is crucial to success.

- Positive feedback from the public and the bus users is helpful in critical situations („nice to have“) but public awareness is generally limited and does not significantly influence the acceptance processes at this stage of project implementation.

The acceptance process is highly influenced by the vision and the project performance.

- Technology characteristics^(*) can have a positive influence but do not enthuse people as much as the vision. Problems in technology performance can be compensated for by adequately selling the vision.

*) smooth driving, emission free mobility, powerful drive



Key learnings for phase 2 cities

2: Identify and define regional added values

Implementing a FCH bus project means *changing a running system and switching to a new technology when more competitive and reliable alternatives are in place.*

Thus most phase 2 cities will require more than “just” environmental benefits and improvements in energy efficiency to commit to FCH bus projects.

Additional specific benefits to the region and/ or stakeholders will increase their willingness to support and accept the effort that comes along with “being a first mover” as long as the (perceived or true) added benefits offset additional costs and efforts.

These added values/benefits will have to be

- **linked to existing regional contexts and issues** to increase perceived appropriateness and usefulness of hydrogen mobility
- **integrated into existing regional strategies** to ensure a long-term commitment and support.



Key learnings for phase 2 cities

Examples of why HFC buses might add value^(*)

	Environment		Market	
Goal	Climate protection	Secure/ improve local air quality	Sustainable corporate/ regional management	Business development (new markets)
	Hydrogen as answer to challenges		H ₂ and FCH technologies as product	
Region interest <i>(localized strategies)</i>	Zero emission public transport	Zero emission public transport	Need for (new) renewable energy storage solutions	Commercialization of by-product hydrogen and hydrogen from renewable energies
Stakeholder interest <i>(mobile strategies)</i>	Corporate identity (green image)		Future cost optimization (reduce vulnerability to oil price fluctuation)	Gain expertise/ competitive advantage

Source: CHIC Deliverable 3.5

^(*) identified in CHIC



3: Take advantage of the regional context

FCH bus projects are implemented in an **existing regional context** with its own particular

- strategic and political interests,
- experiences in regard to former and ongoing innovation projects,
- competing or complementing technology systems in place,
- stakeholders' agendas.

It is important to know and use this contextual framework to choose phase 2 regions with a **benefiting outset situation**, as it impacts the chances and risks of acceptance. Not every willing region will be suitable for becoming a „first mover“. The added benefits from FCH technologies have to fit with the regional context and needs to be determined on a case by case basis.



Examples of supporting or impeding regional contexts

Regional stakeholders consider „FCH buses (as being) an option.“ The expected benefits from the technology has to legitimate investment and risks.

- Integrate FCH buses into an existing regional environmental or innovation strategy to provide benefits beyond the public transport context and share risks within a broader community. Financing FCH bus projects from especially earmarked funds diverts discussion from the opportunity costs of tax money or public transport budgets being spent on new technology.

Bus drivers evaluate the technology „(Buses are) great – when it runs...!”

- Align the technology concepts and implementation processes to the regional public transport situation instead of forcing it into it. Regions face different challenges (growing demand, congested traffic situations, increased time pressure and costs) that influence the work environment of bus drivers. A smart selection of bus lines and the development of backup solutions for technology outages reduce the stress on the drivers and increase acceptance. Contractual agreements on technology availability and backup strategies should be discussed at an early stage of the project. Labelling the project as a trial might increase the support of the bus drivers.



Examples for a benefitting or hindering regional context

Citizens and bus users state that „A bus is a bus.“

- Buses have to transport people from one place to another on time. As long as the quality of bus (or public transport) service is not negatively impacted, **bus users** appreciate activities for greening transport. The existing fleet characteristics (average age, technology used etc.) hereby influence the awareness and acceptance of new bus technologies.
- **Citizens** need to understand motivation of commitment first before becoming interested in technology details. The more diverse the interest of the participating stakeholders are the more confident people feel with the project. Placing the local activities into a broader political and societal context and pointing to the activities in other regions might support acceptance. It is essential to consider these factors when setting up the project consortium.



4: Use the power of networks to initiate the project



Source: CHIC Deliverable 3.5

Initiating a project within existing networks might **reduce the risk averseness** of regional decision makers and **increase their willingness to support** the project by

- making use of the trust and familiarity within pre-existing networks
- finding and placing “guarantors” (e.g. other regions, experts) in the discussions about the relevance of the technology and the project .

In this context it has to be kept in mind that the image of the networks or the people associated with the networks might also influence the acceptance process (positively or negatively).



5: Use the power of networks to ease project implementation



Source: CHIC Deliverable 3.5

- Using the power, resources and knowledge of **regional networks** supports a proper integration of the FCH technologies into regional structures and strategies and might help in securing long-term acceptance and commitment.
- Using the power, resources and knowledge of (international) **hydrogen networks** eases the implementation process by accelerating learnings and regional confidence-building and strengthening the position of the technology demand side.



Examples of the supportive power of networks

Trusting cooperation between regional and international networks influences the acceptance process by

- **enabling** a transparent and comprehensive exchange of experiences with the FCH technologies, the different system and technology designs, and the relationship with suppliers
- **identifying** common challenges and developing solutions, addressing problems and expectations from the demand side
- **becoming more convincing** in the discussion with regional sceptics and critics by referring to activities and experiences in other regions or initiating contact with more experienced users and/or technology experts.



6: Consider the human factor

Introducing FCH technologies in public transport is more than just replacing the technology. New processes, roles, duties and responsibilities are defined or evolve (intentionally or otherwise) in the partnering companies, the project environment and the regions. Parallel structures, procedures and unclear interfaces might result in irritations, reluctances to cooperate and unforeseen costs. It is thus indispensable to **assign strong personalities** to the project team who

- **integrate** the FCH technology into an existing technology context and defend it against established technologies (competing in respect to maturity, cost, or interests),
- **define and implement** new structures and procedures, including helping the organisational context to adapt if necessary,
- **will take responsibility** and risks, including taking on the controversies and breaking new ground to find solutions
- **like to communicate and cooperate** in networks, integrate expertise from within and outside the team, organisation and region.
- **establish a trusting and supportive** working environment (provide and receive protection)



7: Understand the importance of expectation management

An early consideration of the need to identify and manage expectations is important to keeping control in the later stages in the decision and acceptance processes.

Expectations in the initial phase of the project set up influence the evaluation of the implementation phase and the overall project. Unrealistic (high) expectations may lead to disappointment, whereas expectations that are too low risk project support in the beginning or lead to idle potential.

Expectations need to be managed continuously in regard to

- **technology performance and maturity:** Define performance criteria and the roles/ responsibilities of the project partners and other stakeholders (supply/ demand side). Identify and validate (check back) the motivation of all stakeholders for joining the project (technology development, experiences in daily operation...)
- **efforts and expertise:** Clarify information and mutual support needs as well as changes to routines and daily operations. It is important to identify potential conflicts arising from changes in roles and responsibilities. Additional workload has to be pooled amongst all stakeholders to avoid an uneven burden.



8: Reflect on project progress

The more the stakeholders and project partners are occupied by daily project implementation, the more they focus on specific issues (challenges, problems, experiences with the technology). The overall vision and goals risk being lost from sight. As the vision positively influences the acceptance process, more strategic topics need to be regularly placed on the agenda to remind the project team and the regional stakeholders and to keep their support.

The reflection process should address

- **the original vision with its added values** that were important for initiating the project and the decision to participate. If changes to this vision/ added values occur, adaptation of the vision will have to be initiated and discussed.
- **the regional consequences** of technology performance, project activities and decisions, as the project should serve the regions' strategic interests (as future markets) and not vice versa.
- **the need for adaptation of technology and project characteristics** to ensure the realisation of the vision, or a mutual discussion on opt-out scenarios.



9: Establish a continuous information exchange within the project environment

While the core project partners are continuously linked into the project activities, the regional project environment risks losing contact with the ongoing developments, challenges and learnings. In order to keep the supportive acceptance of the project, the broader need for receiving information has to be acknowledged and satisfied.

Important characteristics of successful information exchange are

- *Listening* – to understand the need for and time of information provision, to integrate feedback into the project processes and to identify changes in acceptance levels.
- *Customizing information* – information on project progress (achievements, challenges, strategies, next steps...) has to suit the need of the recipients and is more than just numbers and figures. The interpretation of the project/ technology performance and the learnings for achieving the overall goals are important information.
- *Talking* – providing feedback, “first hand” experiences and discussing options and alternative should not be restricted to the inner circle of the project team but include colleagues/ other departments in the partner companies as well as the regional project environment.



Keeping track of acceptance

The acceptance process of FCH technologies in public transport requires a constant monitoring and management by the responsible project partners. Depending upon the regional context and the existing networks both the operational and the strategic project levels need to get involved.

Besides further activities on technology optimization it is thus essential to

- ensure a broad and strong **willingness to support** the vision and the project activities amongst all relevant partners and regional stakeholders not only at the beginning of the project, but also in the implementation phase and with respect to the post-project perspectives.
- identify practical and appealing **added values/ benefits** to the region to balance against set-backs in project implementation and additional cost.
- integrate expertise from **networks**, find solutions for equally sharing risk and cost amongst the partners and provide a cooperative and open-minded working environment.





DETAILED INFORMATIONEN ON THE STATE OF ACCEPTANCE AND THE
INFLUENCING FACTORS TO THE ACCEPTANCE PROCESS OF FCH
TECHNOLOGIES IN PUBLIC TRANSPORT ARE PROVIDED IN THE
CHIC STUDY (D3.5)

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