Create Acceptance - development of a research based multistakeholdertool for managing the societal acceptance of sustainable energy technologies

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1 Introduction

The aim of the Create Acceptance project[1] is to improve the conditions for sustainable energy technologies by developing a tool for assessing and promoting the societal acceptance of such technologies. Create Acceptance builds on an existing innovation management tool, Socrobust, but aims to enhance it into a multi-stakeholder tool capable of dealing with societal acceptance issues.

There is a need for such a tool because the current understanding of social processes affecting the (non-)acceptance of new, renewable and energy efficiency technologies is limited. Public opinion

[1] Create Acceptance is funded by EU FP6 and coordinated by Energy research Centre of the Netherlands (ECN). Partners include Consiglio Nazionale delle Ricerche (CERIS/CNR) Italy, Ecoinstitut Barcelona, Spain, IAE Toulouse, France, Icelandic New Energy INE, Institute for Renewable Energy Ltd. IEO, Poland, Hungarian Environmental Economics Centre MAKK, National Consumer Research Center NCRC Finland, OEKO-Institut E.V. Germany, SURF Centre UK, and the University of Cape Town, South Africa.

surveys show widespread support for renewable energy and energy efficiency. Project managers often assume that stakeholders will adopt and adapt to their innovation without resistance. In practice, however, stakeholders such as users, NGOs, neighbours or local authorities often have different visions about the innovation and the future world in which the innovation should fit. Failure to engage stakeholders may lead to resistance and to failure of the entire project.

The first phases of the project have included analysing the existing Socrobust tool from a multi-stakeholder perspective (Poti et al. 2007) and conducting a meta-analysis of more and less successful prior projects in different local and national contexts (Heiskanen et al. 2007). Currently, a new multi-stakeholder tool to manage societal acceptance is being developed, and testing of the tool is starting in five demo projects: a hydrogen project in Iceland, a carbon capture and storage project in the Netherlands, a biomass project in Germany, a wind project in Hungary and a solar thermal power plant in Italy. The tool will be refined on the basis of experiences gained, and the new multi-stakeholder tool will later become publicly available to energy managers, policy makers, technology developers, intermediary energy service providers, and other users**.**

This paper provides an overview of the Create Acceptance process and presents highlights from this ongoing project. The focus is on lessons learned from earlier projects (section 2) and the multi-stakeholder tool development (section 3). We conclude with some reflections on future challenges (section 4).

2 Lessons learned from earlier projects

In order to derive lessons from previous projects, we needed an operational definition of societal acceptance. We conceptualised societal acceptance in terms of the social networks that build up around new energy projects, and the ways and extent to which alignment is achieved among the expectations of the project managers and stakeholders, and the resources and demands of the local context. The theoretical foundation of the study is the emerging research tradition of technological transitions. Pilot and demonstration projects are here understood as early encounters of the technology with societal stakeholders, involving mutual social learning.

To understand why some projects succeed in securing societal acceptance while others fail, we conducted a literature study and a meta-analysis of 27 previous projects (Table 1). The projects represent different national and local contexts, different technologies, and also different ownership and management structures, such as private ventures, public-private partnerships and community-based projects.

The cases were analysed using a five-step framework (Hodson et al.) focusing on (1) the visions articulated at early stages of the project (2) the actors and expectations involved in the project; (3) the engagement of various publics in the project and the way in which expectations were negotiated; (4) the way the vision was translated into action; and (5) success in terms of outcomes – i.e., the gap between visions and actualities – and in terms of processes – i.e., the extent to which different social interests were co-ordinated in the project.

Table 1. Overview of the project cases in terms of technology and regional coverage.

	Energy conservation	Biomass	Wind	Solar	Hydrogen	$C0_2$ capture and storage (CCS)	Other
WEST EUROPE	Hannover social marketing for energy efficiency (Germany)	Crickdale Bioenergy Power Station (UK) Bracknell Biomass CHP Energy Centre (UK)	EOLE 2005 wind energy programme (France) Cap Eole wind project in Albi (France)		London CUTE hydrogen fuelling station (UK)	CRUST CO_2 capture & storage project (Netherlands)	Blue Energy (salinity power) (Netherlands)
		Bioenergy Village Jühnde (Germany)			Berlin H2ACCEPT bus trials (Germany)	Schwarze Pumpe CO_2 capture and storage project (Germany)	
NORTH EUROPE	Low energy housing (Finland)	Västerås Biogas Plant (Sweden) Lund Biogas Plant (Sweden)			ECTOS hydrogen project (Iceland)	Snohvit CO_2 capture & storage project, (Norway)	
EAST & CENTRAL EUROPE		Pannon Power biomass conversion (Hungary)	Suwalki region wind project (Poland) Szelero Vep wind project (Hungary)	Pommerania region solar energy project (Poland)			Podhale region geothermal project (Poland)
SOUTH EUROPE	Trinitat Nova Ecocity energy efficiency project (Spain)	Umbria local biomass projects (Italy)		Barcelona Solar Ordinance (Spain)			
				PV Accept solar project (Italy)			
BEYOND EUROPE				Solar home systems (South Africa) Solar water heaters (South Africa)			

The meta-analysis allowed us to identify factors influencing societal acceptance that are (a) dependent on characteristics of specific new energy technologies, (b) dependent on specific characteristics of the national and local context and (c) dependent on procedures for stakeholder participation and project management. On the basis of this analysis, we identified *five central challenges* for project managers in dealing with societal acceptance:

(1) Introducing appropriate projects in appropriate contexts
It is important that project managers consider the political and policy, socio-economic, cultural and geographic conditions in different locations, as well as the timing of projects vis-à-vis changing framework conditions. Such contextual factors have implications for project design and implementation, such as opportunities to integrate with the local economy, appropriate institutions to partner with, or appropriate procedures to involve various stakeholders. Firstly, they can be used to identify more or less suitable contexts for different projects. Secondly, they can be used to alert project

managers to special features of the local context that need to be taken into account when designing and carrying out projects. Thirdly, project managers should develop relations with their stakeholders that allow them to explore the context of their projects. Last but not least, managers have to take into account that the implementation of the project will affect the context and might result in changes of the external environment.

(2) Identifying critical issues and stakeholders for evolving technologies
Different energy technologies have different social impacts. Project managers need to consider the impacts of their technology on at least four dimensions (1) issues pertaining to broader policy debates, issues of principle and overall public perception, (2) requirements for user involvement and the need for user adaptation, (3) requirements of the project in terms of economic, social and technical integration and (4) siting issues and impact on the local economy, social structure and health, safety and the environment. For different technologies, depending on their physical characteristics, modes of application and level of maturity, different issues are relevant. For the less mature technologies, such as carbon capture and storage and hydrogen, the public policy and perception issues are currently dominant, but issues such as siting and local impacts are likely to emerge as they move from demonstration to deployment. Some technologies require extensive involvement, adaptation and acceptance by the users, such as small-scale solar energy and energy efficiency. They struggle more with issues of costs and user perceptions of quality. Other technologies like wind and biomass need to deal with their relations with local residents and integration into the local economy and social structure. It is important to note, however, that critical issues do not only depend on generic technologies, but also on project designs. Societal acceptance is thus not only acceptance of a technology, but of the specific configurations in which different parts of society encounter it.

(3) Interacting with the 'right people' in the 'right way' and 'at the right time'
In this context, 'right people' refers to partners that bring resources and support the project but also enable the project to interact with its external environment, and to the stakeholders who are influenced by or can influence the project. The meta-analysis showed that there are no a priori reasons for any stakeholder group to represent another group (e.g., for NGOs to have the same expectations as local residents). This challenge requires that project managers identify the stakeholders, issues and concerns (for example, the external effects resulting from the project; the user adaptation required; and the links of the project to broader policy debates). The 'right way' of interacting ensues from the kinds of concerns, issues and people involved. Some generic solutions, however, include starting early and continuously, articulating concerns, supporting mutual learning, and ensuring clarity of purpose and division of power and responsibilities. Formal structures usually facilitate the process and make it more transparent, empowering and credible, but formal participation processes do not preclude the need for project managers to listen and learn continually. Project managers should not only involve stakeholders, but also be prepared to involve themselves.

(4) Reflecting on action at appropriate stages
Projects are an interplay between planning and action. Ideally, the knowledge gained through action and observation of the consequences of action should lead to learning. In the context of managing a new energy project, successful reflection on action can be translated into questions that need to be asked at different stages of the project. Table 2 presents a summary of the questions that our case study projects had to address pertaining to societal acceptance. It is roughly divided into the 'design' and 'implementation'. With the benefit of hindsight on previous projects, we suggest that many questions that often arise late in the project should be addressed already at the design stage. Project managers should start asking these kinds of questions early on, but continue monitoring their social impacts and stakeholder relations throughout the project, and develop a reflective approach to issues and new information arising in the course of action.

Table 2. Questions requiring reflection at different stages of the project

Questions to be answered at the design stage	Questions to be answered during implementation
How does the project interact with the local context (or alternative contexts considered): • what kinds of external effects does it involve; does it require user adaptation? • in which ways might it benefit or harm the local context (physical, economic, social or symbolic) and how equitably are the benefits and risks distributed? • what synergies or competition may the project involve with other ongoing developments? • how does it relate to historical experiences and existing competences of those present in the local context? Who are potential partners and stakeholders of the project on the local, national and international level: • whose resources could be important for the project: who might be important 'bridges', 'champions' or 'multipliers'? • who might the project influence and who might exert an influence in it? • how does the project relate to stakeholders' interests and concerns? How will stakeholders be involved and their concerns addressed: • how will stakeholders be informed about the project and how will its vision be communicated? • how will information about stakeholder's concerns be collected? • how early can stakeholders be involved in the project and what aspects of the project design could they influence? • how will different stakeholders interests be represented? • how will stakeholder involvement be integrated in the time frame of the project?	How are communications managed on an ongoing basis: • how does the project keep 'in touch' with its stakeholders (formal and informal channels)? • do new stakeholders emerge as the project evolves? • how can stakeholders monitor the progress of the project and the unfolding of its impacts How is competence developed during the project? • in what ways can stakeholders interact with the project as it unfolds? • what competences are needed for making use of local resources and how do such competences develop? • is there evidence of mutual learning and adaptation? How does the project deal with issues that arise during the project: • issues of representation and division of responsibilities and powers? • resolving potential conflicts among different stakeholders' interests? • dividing attention between stakeholder management and other aspects of project management (technical, operation, market, financial, etc.) When and how should the project 'take stock' and reflect on achievements and remaining problems: • evaluation and milestones? • opportunities for modifying the project according to lessons learned?

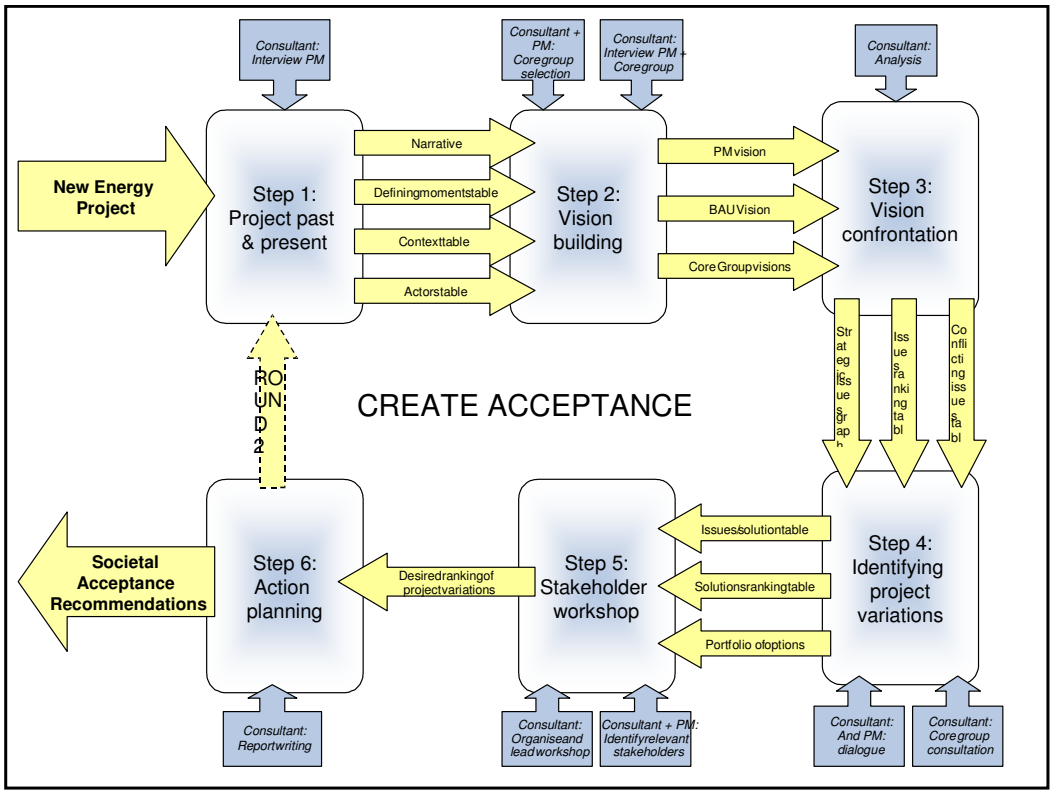
(5) Devoting due attention to managing both the societal acceptance and the techno-economic aspects of the project

Ideally, projects should be successful both in terms of (techno-economic) outcomes and in terms of societal acceptance. The meta-analysis shows that this is possible, and socially acceptable processes also tend to contribute to successful techno-economic outcomes. Yet in order to achieve successful outcomes, project managers need to consider other aspects of the project, including technological, operational, market and financial issues. Project managers thus face the challenge of integrating different management tasks and balancing between the potentially conflicting demands of different stakeholders, as well as of leveraging the social support they have gained to overcome difficulties in financing, policy instability or lacking market power.

3 Developing a multi-stakeholder tool

On the basis of the lessons identified in the meta-analysis, we are in the process of developing a tool for managing new energy projects in a socially acceptable way. Another major input for developing this methodology is the Socrobust tool, which was developed within a prior project financed by the European Commission (Laredo 2002; Jolivet et al. 2003). In this section we discuss our ongoing efforts to develop a tool that addresses the expectations of different stakeholders. The tool is designed to be used in interaction between a consultant (an outside analyst and advisor), the project managers, and the stakeholders. The tool consists of six-step process (Figure 1).

Figure 1. The six steps of the Create Acceptance process.



Step 1. Project past and present

The first step aims to enable project managers to reflect on the history of their project, identify important moments that shaped the project into its current form, make explicit the relationship between the project and its context, and identify key actors that need to be engaged in future developments. Four tools have been developed for this purpose. The first tool is 'the narrative', which aims to make the history and present status of the project explicit. The narrative is used as a basic reference so that the Create Acceptance consultant, project manager and other relevant actors share a common view on the main features of the project. The 'important moments table' is the second tool in Step 1. The aim of this table is to identify past events and decisions that condition future options, thus enabling a more strategic reading of the project narrative. The 'context table' is the third tool in Step 1. This tool aims to identify the various ways in which the project interacts with the context in which it is deployed, and the resulting opportunities and barriers. The 'actors table' is the final tool. It aims to help project managers to learn about the key actors and stakeholders of the project, and their concerns, resources, social networks and potential sources of influence on the project.

Step 2. Vision building

The second step assists the project managers in making explicit their expectations and developing a vision on the project, as well as in having a selected group of stakeholders react on that vision and possibly develop their own. The stakeholder group is selected by the consultant and the project managers through a variety of selection criteria and input from step 1. A third vision is built by the Create Acceptance consultant and represents a scenario in which no project is realised. The visions are constructed by interviewing the project manager and the selected group of stakeholders. Three tools are used to construct the visions. The 'sociogram' gives a visual representation of the social network involved in the future. The 'synthesis writing' is a 1-pager describing this future in a story-like form. And the 'vision title' summarises the essence of the vision in newspaper headline style.

Step 3. Vision confrontation
The different visions developed in step 2 are compared in step 3 by the Create Acceptance consultant to identify possible conflicts between the visions, or opportunities and overlaps. A table is used in which the visions of the PM and the stakeholders are deconstructed on several dimensions, including 'infrastructure', 'economy', 'social', 'environment' and 'regulation'. For each dimension, possible conflicts and opportunities are identified. For example in the case of a bioenergy project there may be a conflict emerging from competition for biomass resources or local emissions and health and safety issues.

Step 4. Identifying project variations
In step 4 the Create Acceptance consultant and the project manager enter into a dialogue to discuss possibilities for changing the project in order to address the conflicts or exploit the opportunities identified in step 3. This step also has a connection with the important moments table from step 1. Some developments in the past are very difficult to undo or can only be undone at a prohibitive cost. Step 4 is therefore not only about identifying project variations, but also about identifying strategies to communicate with stakeholders on the conflicts and opportunities identified. In some cases external knowledge such as quantitative scenario building or risk analysis may be required, e.g. when there is uncertainty about the future environmental impacts of a project.

Step 5: Stakeholder workshop
The project variations are then communicated and discussed with a broader group of stakeholders in step 5. These stakeholders are selected by the consultant and project managers on the basis of a variety of selection criteria and input from Step 1. Stakeholders are invited to react on the project variations at an interactive 1-2 day workshop. The purpose of the workshop is to identify which variations gain support among stakeholders and to start an ongoing dialogue with stakeholders.

Step 6: Action planning
The last step in the Create Acceptance process is action planning. The Create Acceptance consultant, in dialogue with the project manager, translates the results from the previous steps into recommendations for securing societal acceptance and identifying activities that are necessary to anticipate future opportunities or conflicts. One of the recommendations can also be to repeat the six steps within a certain time to keep up with ongoing processes in the project and its context and continuously monitor changes.

4 Reflections on future challenges

The tool presented in the previous section is still under development. At the same time, we are testing the tool in five ongoing projects: a carbon capture and storage project in the Netherlands, a hydrogen project in Iceland, a biomass project in Germany, a wind project in Hungary and a solar project in Italy. The first results of this process are positive and the project managers have positive expectations about the remaining steps.

One of the greatest challenges is to develop a tool that is sensitive to the needs of very diverse kinds of new energy projects. We need to develop a simple and easy-to-use tool that still recognises the complexity of societal acceptance issues. We also need to identify which steps and forms of stakeholder engagement are more or less relevant for different types of projects (i.e., different technologies, designs and ownership structures).

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