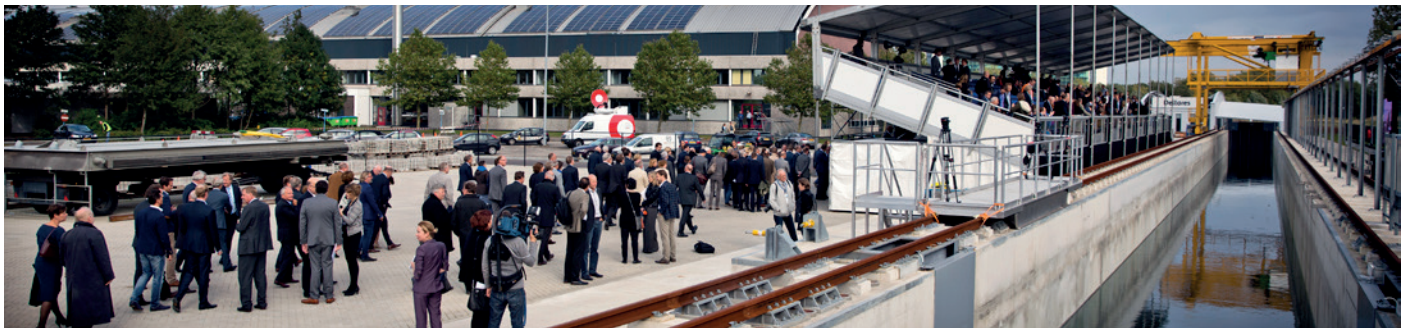
DMEC Dutch Marine Energy Centre



Lead User Innovation Mapping Tool

Why do we need a Lead User Innovation Mapping Tool?

> **Developing and applying new technologies in a public-private context is not easy. Experience learns that it is difficult to attract potential users, mainly government agencies, to apply new, non-proven technologies. The reason for this reluctance is based on risk aversion, formal and legal requirements for technologies, and a perceived lacking sense of urgency. These barriers make it difficult for technology developers to 'prove' the business case behind their new technology. As a consequence, investors will be hesitant to invest in technologies for which no sound business plan or market potential can be outlined.**

The result of this stand-off is that suppliers of new technologies get stuck in the valley of death. They have successfully progressed through the initial stages of research and development, but need more financial resources to advance their technology and to enter the market. Entrepreneurs can reach a certain stage of technological advancement (e.g. TRL3 or TRL4) by relying on their own resources, but often need additional support to demonstrate and scale up their technology.

Moreover, technology suppliers often focus too soon and too one-sided to the challenge of acquiring additional financial resources as a basis for technological advancement. The functioning of marine energy technologies strongly depends on their specific contexts and the needs of the end users. Therefore it can only be developed in the specific context of each user separately.

The DMEC approach

Within DMEC we offer tools to organise and guide your lead-user innovation process within the public-private context of marine energy projects. Technological advancement is not enough. Keeping a keen eye on the evolving requirements of potential lead users of marine energy technologies will enable the technology developer to anticipate the legal, financial, and commercial barriers in the innovation process.

Bridging existing knowledge

To develop a lead user innovation process within a public-private context, a number of steps must be undertaken. These steps are based on Von Hippel's approach (1986 / 2005) but modified for the public-private context in which most marine energy technologies will be developed and implemented:

- Identification of the potential lead user(s) of the new technology;
- Assessment of the core values, core interests and core breaking points of the potential lead user(s);
- Assessment of the potential benefits of your technology for the potential lead user(s);
- Matching the outcomes of the former steps by constructing Product-Market Combinations (PMCs) or market segments;
- Assessment of the (governance) capacity of your company to access the core values and core interests, and avoid the core breaking points of the potential lead user(s) in the selected market segment.

Based on these steps, technology providers and potential lead users can set up a co-creative innovation process for further advancement of the technology. This innovation process is aimed at co-creating a large-scale demonstration project (prototype), e.g. at the site of the collaborating lead user. A working large-scale demonstration project (TRL5 or TRL6) will attract additional users of the technology, making the effort of attracting external investors inherently more easy.

Develop new knowledge

The underlying idea is to abandon the dominant technology push approach and move towards market pull. Lead users should be put in the position to support the technological advancement, because the envisioned technology will help them to protect their core values and realise their core interests. Their core breaking points (no-go areas) must be included in the technological development. However, lead user innovation is not common in public-private contexts.

Within DMEC, fundamental knowledge is developed about how to realise successful innovation projects in which private technology providers (such as SMEs within the DMEC network), public lead users (such as water boards, Rijkswaterstaat and provinces) and NGOs (amongst which nature conservation) can join forces to advance and implement sustainable marine energy technologies.

Which DMEC-partner can do what?

Erasmus University Rotterdam

The Department of Public Administration and Sociology of the Erasmus University Rotterdam (EUR) conducts research programmes on governance, collaborative networks, and public services innovation. In these research programmes, we start from the recognition that the complexity of societal problems requires joint efforts of public, private and societal actors. The capacity of public, private and societal actors to come to these joint efforts, is called governance capacity. Governance capacity of the actors involved is essential in lead user innovation. The Erasmus University develops approaches to assess and strengthen governance capacity in innovation projects, e.g. for the implementation of marine energy technologies.

What can DMEC do?

Whether you are a technology developer or a representative of a potential user of a marine energy technology, DMEC assists in finding answers to your questions about how to map and implement a lead user innovation process. We have a set of practical tools available to walk you through the steps we have outlined in the textbox on the first page. We can also help to broker and mediate between your company, and other companies, public authorities, knowledge institutes and societal interest organisations that must be involved in the lead user innovation process.

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