

Case Study 09

Sensibilities and vulnerabilities of small and medium enterprises in the Upper Rhine Region (Insa Strasbourg)

Case study description

The case study is characterised by the presence of the Rhine as a "river infrastructure" which structures many economic activities. Inland waterway transport appears alongside the railways as an alternative to any truck or car. In the perspective of ecological transition, inter modality is seen as a path to sustainable development.

Although not all companies and activities are dependent on inland waterway transport, a significant number of activities are dependent on it.

However, the consequences of climate change pose new risks to this mode of transport through so-called low- and high-water periods, which are prolonged or even more critical than in the past. Low water is the most critical for transport. The year 2018 was particularly marked by this problem. As a result of the drought, but also of the reduced snow cover in the Alps, the levels of the Rhine remained below the averages over several months (April to October 2018). A whole cascade of elements resulted, with repercussions in terms of degraded activity and increased costs for shippers and carriers. A related effect is the use of land-based transport, which is more expensive (increased costs) and less environmentally sustainable due to the production of greenhouse gases. Because of its strategic stakes, navigation on the Rhine is regulated by various international organisations. As a result, the problem has, as it stands, transnational organising authorities. These arenas form spheres of discussion and decision-making. They order studies such as reports on the issues at stake for the economic players, or even to identify possible solutions for adaptation.

Methods

The method is inspired by the TRIZ method, of which the CSIP laboratory (Icube, Insa Strasbourg) is a specialist. The TRIZ method, still described as inventive design, explores solutions to industrial problems through qualitative and quantitative investigation. The method uses interviews in the form of focus groups and individual interviews as well as site observations to map the problem as it presents itself and is represented by the competent actors (the users). This cartography is then analysed by computer-assisted analysis, resulting in graphs of problems and partial solutions. These options are subject to validation by the stakeholders in order to proceed step by step to technical and operational prototypes. A partnership between the Port Autonome de Strasbourg (PAS) and a certain number of enterprises (7) and the Insa was passed just before the confinement. The process has been interrupted but should be able to resume once the crisis has been overcome.

Actors and sectors involved

As mentioned above, the participants are the port authorities and the companies that have expressed an interest (shippers and carriers).

Preliminary assessment of exposure to, sensitivity to, and impacts of CC and CC policies

The initial diagnosis includes the water level, depending on climate change, the watercourse (some parts of the Rhine being more prone to low water, activity (order books, business models, etc.), the type of shippers (real or container), logistics on the Rhine, prices of different types of transport, the type of ships or barges in circulation, current research, socially acceptable options (social acceptability), etc.), and the results of the analysis.

Description of current adaptative measures/capacity (if available)

There is a range of options as it stands, including infrastructure developments (the Rhine) and water regulation systems, in particular by pumping into Lake Constance. Both of these options have an ecological cost. Other options such as fleet renewal are discussed, but they have an economic cost. The development of a railway to take over in case of low water seems to be an option favoured by the German government (to be dug), but it takes time. Logistical solutions are being studied, such as dry ports, etc. These may not meet the challenges of the Upper Rhine, which is more affected by low water than the Lower Rhine.