In order to cope with the challenges of climate change, fundamental changes are needed in established systems of service provision and consumption. A key rationale for climate policy making is that it induces firms and other actors to develop new ‘climate-friendly’ technologies.

The goal of this project was to study the strategies of firms, inter-firm alliances and associations in the tension field of climate policies and innovative technologies. Each of the three modules focused on a selected set of the relations depicted in the diamond. Empirical analyses were carried out in the fields of energy supply and transportation.

Our results show that existing climate policies do not necessarily trigger technological innovation. In order to be effective, climate policies have to be stringent and must be embedded in long-term visions and political goals (D1). The policy challenges might be even more pronounced if radical innovations (e.g. decentralized energy technologies) shall be stimulated. For fundamentally new technologies to develop and succeed, firms from different sectors have to come together and work towards common goals. Such networking as well as knowledge creation in the field have to be supported by a variety of policies – some rather generic, some more technology-specific (D3). Climate policies, in other words, have to be complemented by sector- and technology-specific stimuli for innovation.

While in the case of emerging technological fields, the effects of networking and alliance-building may be desirable for system changes, we observe the adverse effect in established sectors such as the car industry. Lobby networks and associations in established industries typically counteract effective climate policy making in order to protect existing products and market shares (D2). As a matter of fact, policy making has to tackle different fields in different ways in order to achieve the goal of fundamentally transforming existing systems towards more sustainable modes of production and consumption.

### Recommendations

- Enhancement of stringency and predictability necessary
- Political long-term visions have to be formulated to provide orientation for firms
- Complementation of climate-policy with smart innovation policy mix
- Technologies in niches need to be specifically supported ➔ see Module D3 (next column)

Technology and innovation policy should:
- Track and enhance the development and the supportive effects of collective resources.
- Support inter-firm alliances and collective action in the technological innovation system.
- Support the creation of value chains.

However: Networks of established actors may also counteract sustainable innovation & technological change ➔ see Module D2 (next column)

- Information: enhance dialogue between private and public stakeholders and science; and political decision makers and science
- Expert groups from science as policy consultants
- Transparency in political decision making and administrative processes