

Success Factors of Eco-Innovation and Lead Market Strategies

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The paper asks for the opportunities and potentials for an international diffusion of environmental innovations. It is most often pioneering states which push effectively for both, advances in global environmental policy and the development of environmental innovations. These phenomena might be analysed as lead markets for environmental innovations.

Lead markets are geographic markets which have the characteristic that product or process innovations, which are designed to fit local demand preferences and local conditions, can subsequently be introduced successfully in other geographic markets as well and commercialized world-wide without many modifications. In the model of international diffusion of innovations a lead market is the core of the world market where the local users are early adopters of an innovation on an international scale. Examples for lead markets are the facsimile machine in Japan, the internet in the USA or the cellular phone in Scandinavia. Innovation economics ascribes the emergence of lead markets to five groups of factors: Lead countries might have advantages regarding prices, demand, the transfer of innovations, the export, and market structure advantages.

We understand lead-markets for *environmental technologies* as regional or national markets, which were stimulated by higher preferences for environmental goods in a given country, by specific supporting measures, or policy interventions, which are able to influence the markets in other regions effectively, trigger reactions of adjustment and finally lead to an international diffusion of the new technologies. By this, we take again into account, that *environmental* innovations have to be largely ascribed to governmental (or NGO) activities. Furthermore, environmental innovations provide marketable solutions for environmental problems, which are mostly encountered worldwide or at least in a great many countries. Thus technological solutions to environmental problems enjoy, right from the outset and by their very nature, potentially larger than national markets.

The emergence of international markets for environmental technologies is supported by the diffusion of the appropriate policies. Standard solutions in certain pioneer countries diffusing world-wide, thus causing a substantial convergence in policy formulation at national state level – often irrespective of extremely different capacities for action. The diffusion of policy innovations depends on the characteristics of the innovation and the underlying problem, on the capacity for environmental policy in the adopting country and on the support by international organisation.

For our purposes it is crucial to understand why countries go ahead in their environmental policy regulations and under which circumstances that policy is successful in terms of increasing the share of domestic companies in international markets and thus increase employment and incomes at home. Modern, game-theoretically founded environmental economics supports the view that a stricter environmental policy ahead of other countries –even though it increases costs of regulated firms - can, under certain conditions, improve the competitiveness of domestic enterprises.

Finally it is necessary to analyse the behaviour of companies, in particular multinationals, since they are potentially agents of diffusion of technologies and standards. Two

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approaches of management sciences may be utilised here: on the one side Porter's strategic positioning school and on the other side the resource based view on firms.

The emergence of lead markets for environmental innovations cannot be explained by a single disciplinary approach. All of the distinct theoretical approaches defined by their methodologies and their respective objects of research, contribute to the analysis of this phenomena. An integrated framework of analysis is developed in the paper.

The concept of our research is as follows: Asking (1) for a description of the innovation design, the lead market, the regulatory measures which were taken in the pioneering country, and the actors involved, (2) an analysis of the lead market factors of the *country*, (3) the lead market factors of the *innovation*, and (4) the lead market factors of the *policies* supporting innovation and diffusion.

Conclusions can be drawn regarding the types of innovations which successfully diffused on the world market, the properties of the leading countries and of the policies supporting the innovation and diffusion.

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