

THE ECOLOGICAL MODERNISATION OF INDUSTRY

Developing Multi-disciplinary Research on

Organisation & Environment

By

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A Thesis

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...And what it will have to deal with will be exactly what all myths have dealt with – the maturation of the individual, from dependency through adulthood, through maturity, and then to the exit; and then how to relate to this society and how to relate this society to the world of nature and the cosmos. That's what the myths have all talked about, and what this one's got to talk about. But the society that it's got to talk about is the society of the planet. And until that gets going, you don't have anything.

Joseph Campbell, *The Power of Myth*.

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Abstract

This thesis develops suitable approaches to conduct environment-related research in organisations, as well as systematic means for understanding the emergent phenomenon of ecological modernisation in industrialised societies. The study is organised in two distinct parts: While Part I deals with environment-related theories and practices in (and around) modern organisations, Part II situates such theories and practices in an analysis of the context of the European automobile industry.

The research problem is defined through several stages. The research questions driving Part I are premised on the exploratory nature of the study, developed in an unfolding interplay between the review of the literature, the collection of secondary and (exploratory) primary data, and the analysis and interpretation of the data. As the initial question is answered by reviewing the literature and interpreting the primary and secondary data, another question arises from the process, which then requires further research.

Part II of the study departs from a proposition based on ecological modernisation theory, that pro-active environmental practices in corporations are part of a broader emergent sociological phenomenon, typical of modern industrialised societies. It analyses a specific socio-technical context that, hypothetically, is undergoing such process – that of the European automobile industry. Hence, the development of Part II aims at answering the following principal research question: Why is the European automobile industry undergoing ecological modernisation? Analytically, the concept of *automobile field* is proposed to establish a link between the product (automobile) and the context embedding its systems of production and consumption (field). The exploratory character of the study implied that the most adequate research procedures were of a qualitative nature. A combination of grounded theory and reflexive methodology is used to orientate the overall research process, which introduces a novel approach for the triangulation of qualitative data.

Together, the chapters forming Part II of the thesis answer the principal research question. The fundamental technologies of the current technological regime of the automobile, as well as the economic and environmental implications of this regime are analysed. Then, an analysis of selected pilot programs to develop and commercialise

electric vehicles, as well as schemes for the management of end-of-life vehicles in the Western European context is developed. Through the interplay between data collection and analysis, the thesis designs an analytical framework, built upon contingent factors, as well as circuits of political ecology, that foster or inhibit ecological modernisation in the automobile field.

The study showed that the auto industry has developed incremental technological innovations and practices that resemble the pre-requisites for ecological modernisation. Radical innovations, however, are more likely to be initiated by outsiders. The concepts inherited from the past and reproduced in the present practice of car design explains such a situation as one that imposes a specific set of technologies on car manufacturing that require high levels of investment in systems of production. Such design paradigm not only imposes high break-even points for most car models; they also result in vehicles with extremely low environmental performance and entail serious limitations for increasing recycling rates of non-metallic parts.

The characteristics of ecological modernisation in the European automobile industry are used to evaluate whether this phenomenon is conducive to sustainable industrial development. As an implication of this analysis, the concluding chapter presents suggestions for the enhancement of ecological modernisation theory. *Fallibility* is proposed as both a source of reflection about the appropriation of knowledge and a principle that can be used for the definition of eco-modernising strategies and actions. The acceptance of fallibility as an immanent characteristic of human action is critical for the approximation of the countervailing theories of ecological modernisation and risk society. Finally, if ecological modernisation is expected to facilitate sustainable industrial development, radical technological innovations may be necessary. Such radicalism in technology may need, however, an incremental institutional reform of modern societies. Together, radical technological innovations and incremental institutional reform constitute the concept of *radical reformism*, which is suggested for enhancement of the ecological modernisation theory, as well as for the development of its normative programmes.