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**ENVIRONMENTAL INNOVATION AND CORPORATE
COMMUNICATION :
A UK/GERMAN COMPARATIVE STUDY**

SUMMARY FINAL REPORT

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I. OBJECTIVES

- to assess the role of communication within the environmental innovation process
- to compare the communication policies and practices of a sample of 10 environmentally innovative UK companies and 10 environmentally innovative German companies
- to investigate internal communication at critical intraorganisational interfaces between management and employees and between different functional areas of the business
- to explore external communication at key extraorganisational interfaces with the public and individual consumers and with supplier and customer organisations through the supply chain
- to identify critical factors in boundary spanning communication processes which contribute to the successful innovation of environmentally sounder technology and organisation
- to facilitate the transfer of best practice between companies and across national boundaries.
- to develop guidelines for education for environmental innovation management on the role of communication in the innovation process

II. METHODOLOGY

Identification of Cases and Data Collection

Lists of environmental innovation award winners were the primary method for the identification of UK and German cases. Each case represented a commercially successful introduction of a new product or process which represented an environmental improvement. Material was gathered for each case by a visit to the companies concerned and through the conduct of interviews with the key actors involved in the innovation. A questionnaire framework was drawn up as the basis for these interviews. The objectives of the interviews were to obtain information about:

- the novelty and merits of the innovation
- the corporate context for the innovation
- the actors, relationships and inputs involved in the innovation process
- the nature of communication between specific actors

Wherever possible texts that had been exchanged between actors were identified and obtained. If they were unavailable, as much verbal information as possible was gathered about their content and role.

Network Mapping and Interface Analysis

Following data collection, data reduction and analysis passed through a number of phases: the initial steps involved the writing-up of case-histories and the mapping-out of the *focal action-sets* for each of the innovations investigated: a *focal action-set* is that set of relationships delineated in terms of specific exchanges with a specific focal actor to undertake a specific task (in this instance cases of environmental innovation). Within-case analysis was then undertaken. With respect to the network and interface analysis of the individual focal action-sets, a number of questions were posed, such as:

- What stimulated the project and what was the timing of the internal response?
- What was the nature of this response: organisational versus individual actions?
- Were particular individuals important environmental or project champions?
- What were the key internal and external interfaces in the innovation process?
- Did these key interfaces shift during the life-time of the project?
- How were these interfaces managed?
- What was the nature of the relationships across these interfaces?
- To what extent were particular individuals important boundary-spanners?

Cross-case analysis was then undertaken by looking for variations in: the *balance* or morphology of the focal networks; the key stimuli; the comparative role and responses at the organisational and individual level; the key interfaces and external sources of inputs; the nature of the relationships and form of communication across these key interfaces; and the management of these interfaces. Initially this cross-case analysis was undertaken on a national basis (*i.e.* between the ten UK cases and between the ten German cases). These results were then synthesised at the national level and used for a comparative analysis of the UK and German cases.

The Classification of Texts

A first level scheme of analytical classification of texts was constructed based on Leech's functions of language and Austin's theory of speech acts, incorporating:

type: involvement in network linkage, role in linkage, environmental orientation

function: informational, directive, persuasive, phatic

form: declarative, interrogative, imperative

actors: text generator/audience, direction of text flow

medium: verbal/written, formal/informal

Argumentation Analysis: Ethics and a Typology of Arguments

A second level analysis was then undertaken which focused on argument structure. A distinction is made between an *ethic of convictions* (Gesinnungsethik) and an *ethic of responsibility* (Verantwortungsethik). Only arguments based on the first one would accord priority to the environmental benefit in spite of possible adverse effects. Discourse concerning environmental issues are still controversial. There are, in principle, two main types of arguments that may be employed in such a debate: one type pronounces the necessity to change; this is the argumentation of "progressive rhetoric"; the other type tells us to leave things as they are; arguments of this kind we find in what Hirschman (1991) calls the "rhetoric of reaction". The arguments employed in the texts were analysed using the following two typologies:

The "progressive rhetoric" typology of arguments

- Value-oriented conservatism (as opposed to structure-oriented conservatism [wertkonservativ vs. strukturkonservativ])
- The imminent danger argument
- The competition argument
- The old Marxist (or rather Hegelian) notion of historic laws we cannot beat.

The "rhetoric of reaction" typology of arguments

- The perversity thesis
- The futility thesis
- The jeopardy thesis
- The certainty argument

Both progressive and reactionary argument types are part of any standard discourse on the human condition. In the analysis of the texts, parallels are drawn between progressive rhetoric and an ethic of convictions, and an ethic of responsibility which is often found in the context of the rhetoric of reaction.

III. MAIN RESULTS

Environmental Innovation Network and Interface Analysis

- Analysis revealed five categories of project stimuli: (1) regulation; (2) the political and cultural environment; (3) customers; (4) market; and (5) knowledge.
- What is particularly striking in the German cases was the prevalence of environmental legislation as a trigger and the pervasive nature of the stimuli emanating from the broad public awareness and concern for environmental issues in Germany. To a lesser extent, regulation also had a role to play in triggering UK projects. Customers were found to play a role in a third of both the UK and German cases, although these were often spurred into action by regulation.

- One of the more striking features of the UK sample was the important stimulating role played by knowledge.
- A very striking feature of the German innovators was the institutionalisation of environmentalism within the culture, policies and structures of the organisation; nearly all had established 'environmental protection' departments or appointed environmental officers. This is in stark contrast to the UK innovators, which exhibited an almost complete absence of such environmental institutionalisation.
- In the German sample there were few examples of the internal response being derived from outside of this institutional top-down framework. Further, the importance of committed individuals in top-management was often cited. In contrast, the UK sample was fairly evenly divided between those that were driven from the top-down and those that were driven from the bottom-up.
- Whereas the German sample was heavily biased toward reactive and, to a lesser extent, anticipatory innovation, the UK sample was well balanced in its provision of examples of proactive and reactive/anticipatory projects. This is only partly linked to observable differences in national environmental regulatory frameworks
- With respect to external interaction during the innovation process, customers and suppliers were found to be important in both the UK and German sample. The main differences arose with regard to the important role played by universities and research organisations in a number of the UK cases, and the public relations interface in a number of the German cases.
- Whereas effective cross-functional interaction was cited as being important in many of the German cases, this pattern was found to be weaker in the UK sample.
- The importance of identifiable environmentally aware and committed individuals was much more prevalent in the German cases, where they were often, but not always, located within the 'environmental protection' departments.
- Informality in both internal and external relationships was found to be important in both the German and UK sample. However, while in Germany this was cited as atypical in product development this was not the case in the UK sample.

The Function of Collected Texts

- In the UK sample, there were proportionally fewer overtly environmentally-motivated texts across the internal interfaces. In the German sample, the environmentally-motivated texts flowing across internal interfaces included documents such as guidelines, handbooks, notices and in-house magazines.
- As regards the environmental content and orientation of the texts, here again the research found differences between the two national samples. In the UK sample, a majority of the documents were seen as having an environmental orientation, but in nearly two-thirds of them, the environmental content was of secondary significance. Whereas in the German sample, those texts with an environmental orientation - which are the vast majority - accorded primacy to the environmental content.
- The analysis of vocabulary in the texts under consideration tended to lend support to the hypothesis that there is a more sophisticated public debate on environmental issues in Germany than in the UK. This can be seen firstly in the volume and range of environmentally-related vocabulary in the German texts, which indicates a higher level of pre-supposed knowledge on the part of the target readership.
- As would probably be expected, declarative forms predominate, and both samples displayed an approximately equal proportion (around one third) of imperative forms.
- Significant differences could be established between the two samples in relation to the function of the texts. Although most texts have a clear informational function, it is well known that information is seldom imparted for its own sake but is more likely to be given in pursuit of another function, be it regulative/directive, persuasive or

phatic. The UK sample contained a considerable proportion of persuasive texts and scarcely any regulative/directive texts, while the proportions were reversed for the German sample.

Argumentation Employed in the Collected Texts

- The sample of UK and German documents provided many instances of progressive, change-oriented argumentation, particularly in documents drawn up for the marketing phase. However, the vast majority are not grounded in the ethic of value, but in the ethic of responsibility. This is true for environmental products to be sold to industrial customers as well as for those to be sold to private consumers.
- On the whole, the project found the undercurrent of the ethic of convictions to be more discerned in the German cases than in the UK cases. Indeed, there was only one document for a UK case that can be highlighted in this respect
- Progressive rhetoric was the standard scheme in the sample of texts, both for the internal and the external interface, during the development and marketing phases. Change was consistently interpreted as improvement. Where arguments used environmental aspects, there is usually found the *synergy* argument type: the new product is more cost-effective and, at the same time, more ecological.
- However, in the post-factum approach to studying environmental innovation, initial negative attitudes will mostly have been suppressed. Indeed, the opponents of these environmental projects are not covered by the survey - there is only indirect evidence (through interview material) of instances of the rhetoric of reaction. The arguments encountered were those of the *perversity* and of the *futility* type.
- Most of the argumentation, in all interfaces, was based on the ethic of responsibility: we in principle are in favour of the environment, but we must not let environmental concerns ruin our business. The ethic of responsibility was usually aligned with structure-oriented conservatism: minor changes will preserve existing structures. The research found the ethic of convictions (along with a value-oriented conservative approach) only in texts addressing confirmed communities of environmentalists.
- For the development phase of environmental innovation, the research found more enthusiastic statements among the German key actors interviewed than among the British interviewees. This does not necessarily show a greater ecological interest among German management; to openly express a pro-environmental attitude is to meet the expectations of the German peer group.

IV. SCIENTIFIC INTEREST AND POLICY RELEVANCE

(a) scientific interest and novelty

The methodology employed in the research was an original synthesis of methods from the different arenas of social networks and discourse analysis. The results showed that this combination can be productively applied to the empirical investigation of environmental innovation and corporate communication processes.

Societal pull through regulation played the major role as a stimulus to environmental innovation in Germany. Knowledge push through research was the main trigger for environmental innovation in the UK.

Environmental objectives were usually institutionalised as a specific managerial function in German companies while this was rare in UK companies. Innovation was more often driven from above by environmentally committed managers in the German cases than in the UK cases where it was often bottom up and not focused specifically on environmental goals.

Anticipatory innovation was a feature of a significant number of UK companies while reactive innovation was the norm in the German cases.

External boundary spanning was important in UK and German samples while internal boundary spanning was seen as more important in the German cases compared with the UK sample.

Informal relationships were seen as important in both Germany and the UK but in the German cases were regarded as a departure from normal practice.

The investigation revealed a difference between the UK and German cases concerning the environmental **content** of the texts involved in communication. Internal company documents in the UK were less likely to refer to the environment than those in German companies. In general the UK documents which do refer to the environment are likely to treat it as a secondary issue while the equivalent German documents usually give it primacy.

There was also a difference between the UK and German cases in the **function** of the texts involved in communication. Although most texts in both sets of cases were partly informational, there was usually also an associated function. In the UK this was predominantly of a persuasive nature while in Germany it was mainly regulative/directive.

With regard to **argument structure** of the texts there were similarities between the two countries with a reliance on progressive rhetoric and synergy argument type. The UK cases had a greater propensity to link environmental issues with health or economic issues. Although the majority of texts were grounded in an ethic of responsibility there was an undercurrent of ethic of conviction argument in the German cases while this was almost completely absent in the UK cases.

(b) policy relevance

The findings were relevant to policy at the national level in their implications that an emphasis on regulatory means toward environmental objectives may be associated with a particular style of compliance oriented environmental innovation.

At the corporate level there were implications concerning the choice of appropriate modes of communication in the environmental innovation process with both similarities and differences between different national settings.