

SIX CASES OF CORPORATE STRATEGIC RESPONSES

TO ENVIRONMENTAL REGULATION

by

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Abstract

We analyse the green strategies of six multinational enterprises subject to environmental regulations. In this framework we add government regulations as an explicit “sixth force” to Porter’s basic “five forces” model. First, we distinguish between shifts in corporate strategy towards market forces and regulators. Second, we examine the advantage of being a first mover. Third, we develop a resource-based perspective on “green” strategies in an international context where firms can develop either “localised” or “internationally transferable” “green” capabilities. We find that four multinational enterprises have developed internationally transferable green capabilities (DuPont, Honeywell, McDonald’s and Xerox). One (Laidlaw) has a localised capability and one has none (Allied Signal).

Keywords: green strategies; green capabilities; environmental regulations; first mover responses.

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1. Introduction

The “five forces model” for industry analysis (Porter, 1980) is now a standard tool used by both academics and practitioners when conducting strategic management studies. In the past decade, this competitive positioning approach has been augmented by the resource-based perspective, which has focused on the accumulation of valuable, knowledge-based assets by individual firms. An integrative synthesis of this work has recently been developed by Teece, Pisano and Shuen (1997) and Teece and Pisano (1998). They have proposed a “dynamic capabilities” approach as the key to strategy development for the modern business firm.

Such an approach focuses on the specific ways in which capabilities are renewed as a response to shifts in the environment relevant to the firm. This new perspective raises two important questions. First, does the standard five forces model adequately include the various actors in the firm's environment to which it must respond, given the complexities of modern business, especially the tendency toward globalization? Second, given the relevant external forces to be included in a strategic positioning analysis, do changes in specific external forces require specific types of shifts in the development and use of dynamic capabilities?

In the next sections, a simple conceptual framework is developed that suggests an answer to the above two questions. The relevance of the framework is verified through the analysis of six high profile case studies of corporate strategic responses to environmental regulation, namely the cases of Du Pont, Laidlaw, Allied Signal, Honeywell, McDonald's and Xerox. Environmental regulation demonstrates the necessity to extend the five forces model into at least a six forces model, in which government regulation is included. The six cases were selected as interesting and relevant examples of the need for a shift in firm-level strategy in response to changes arising from specific forces driving industry competition. They also all bring an international dimension to the issue of corporate strategy and environmental regulation.

2. Relevant theories: strategic positioning and dynamic capabilities

Porter's (1980) strategic positioning model builds upon the assumption that five forces determine industry attractiveness, i.e., the potential to earn rents. Three forces represent the “horizontal” competitive relationships, namely the rivalry among competing firms, the threat of new entrants and the threat of substitutes. Two other forces reflect the firm's “vertical” linkages with external actors, namely buyer and supplier power. An interesting characteristic of the five forces model is that industry structure, at least when used for strategy prescription at the firm level, is viewed as partly endogenous. This means that there is a reciprocal relationship between industry structure and firm behaviour. Entry barriers do not just result from a given industry structure but may be induced or challenged by firms. In this context, the five forces could be seen as the “opportunities-threats” component in a conventional SWOT-analysis (strengths, weaknesses, opportunities and threats).

In contrast, the resource-based view focuses on the “strengths-weaknesses” component of SWOT analysis. It does this by identifying valuable (as perceived by customers), non-substitutable, non-imitable, firm-level competences as the basis of superior performance, Penrose (1959), Rumelt (1984), Barney (1991), and Conner (1991). A resource-based perspective has sometimes also been adopted for purposes of industry-analysis. Industry capabilities are defined as resources that are shared by incumbents but are not available to outsiders. These include trust relations, and specific ways of diffusing and sharing technological knowledge, Foss (1997). An integrative perspective has recently been introduced, Foss and Eriksen (1995), Teece, Pisano and Shuen (1997) and Teece and Pisano (1998). In this, dynamic capabilities (at least implicitly) reflect the firm's ability to respond effectively, on the basis of its internal strengths/weaknesses, to external opportunities/threats. These dynamic capabilities include special company strengths to cope with the shifting character of the environment. More specifically, this approach focuses on the key role of strategic management in appropriately adapting, integrating and re-configuring company strengths towards changing environments, Teece and Pisano, (1998, p. 193).

Such a Schumpeter-type perspective focuses explicitly on the renewal of competencies and, implicitly, on the achievement of first mover advantages, because the

time dimension is critical¹. Difficult replication by other firms permits a stream of rents to be sustained for a longer time.

It is important to recognise that specific, firm level responses to external changes are influenced by path dependencies (e.g., long-term, quasi-irreversible resource commitments). The development of a dynamic capability by a firm therefore needs to build incrementally upon existing internal processes. Here, external forces must be taken into account, but these result themselves from paths along which the firm has travelled in the past. Bearing this in mind, it would appear that Porter's original five forces model can, at best, be only a partial analytical tool to aid in strategy development at the firm level.

In addition, it is sometimes argued that Porter's industry-level analysis may need to be supplemented with a macro-environmental one. A variety of "intermediate" parameters (in the realm of the social, macro-economic, political and technological environments) can then be analysed, and their implications for the firm determined through their impact on the five forces driving industry competition. However, in some cases, macro-environmental changes can have an immediate impact on the firm, irrespective of their intermediate significance for the five external forces. This holds especially for government regulations. This has already been demonstrated by Rugman and Verbeke (1990, 1998a, 1998b), in areas such as trade and investment decisions and firm level responses to environmental regulation. This analysis is especially relevant for multinational enterprises (MNEs) because their institutional status is defined by the crossing of geographic borders. From a conceptual perspective, the single most important change at the firm level, when establishing foreign operations is being faced with a second sovereign government.²

The basic definition of an MNE, as a firm that performs value added operations in at least two countries, requires an MNE to deal with two or more governments. From an institutional perspective, government regulation has immediate implications for the boundaries of the firm, just as buyer power and supplier power influence the vertical boundaries of the firm and rival companies, potential entrants and substitutes have an effect on its horizontal boundaries. Geographic borders controlled by sovereign governments

¹ It is possible that strong capabilities would precisely lead to exercising the "wait-option" in cases of high exogenous uncertainty, a high delayability and low reversibility of resource allocations at the firm level, see Rugman and Verbeke (1998a). However, the focus of the present paper is on changes in the forces driving industry competition that require dynamic capabilities to 'absorb' these changes at the firm level.

² In addition, Stopford and Strange (1991), Rugman (1995) and Ostry (1997), have argued that, in this international context, other forces, such as environmental NGOs, play an increasingly important role.

fundamentally determine the domestic or multinational nature of the firm's value chain. These borders not only affect the actors in the market environment relevant to the firm's horizontal and vertical boundaries. Government regulation also directly constrains the range of feasible strategic options open to the firm and provides incentives (e.g. through taxation rules) favouring specific types of strategy development. In terms of developing a winning capability, it can thus be concluded that at least six forces rather than five directly affect firms. Each of these forces may require a shift in strategy formulation by the firm, as well as the use, or development, of dynamic green capabilities in order to achieve the effective implementation of this shift.

3. A new model of environmental regulations and firm strategy

Using the above reasoning, we will develop a three part analysis of environmental regulations and corporate strategy. Environmental regulations were chosen because they reflect one of the most rapidly growing fields of government intervention. The framework will then be applied to six MNEs. We discuss the three parts in sequence. First, if government regulation is perceived as having a major impact on the functioning of an industry, then the use of the conventional five forces model would translate this impact into relevant effects on the firm through some or all of the five forces. From a normative perspective, the predicted effects could then lead to a change in firm behaviour if such a change were viewed as beneficial to the firm. The predicted effects would not be viewed as exogenously determined constraints on firm behaviour but as outcomes which, at least in terms of significance to the firm, could be altered by a shift in firm strategy. In the present paper, however, we suggest that government regulation may have an impact in its own right, irrespective of its possible influence through the five conventional forces driving industry competition. This also implies that a change in regulation may not only call for a change in the firm's strategy vis-a-vis these conventional market forces, but also a change in strategy toward government itself.

The above analysis is described in [Figure 1](#) on government regulations, in this case environmental regulations, and shifts in firm strategy. Here, it is suggested that a change in environmental regulations may through its impact on the five conventional market forces lead to a firm-level, indirect shift in strategy. However, it may also lead to a direct shift in strategy, irrespective of its impact on the five market forces.

Second, the dynamic capabilities issue is captured in [Figure 2](#), where an effective first mover response is viewed as a proxy for a green capability to deal with changes in government regulations.³ Here, the effective first mover response, may again be geared toward the five forces (horizontal axis, weak or strong) or more directly, toward government itself (vertical axis, weak or strong).

Third, from the perspective of the MNE, the key question is whether a green capability related to government regulation, if it is present at the firm level, is “localised” or “internationally transferable”. A localised dynamic capability reflects the company’s absorption capacity in dealing with external change with the potential to obtain competitive advantage only in a limited geographical area, e.g. a single country. In contrast, an internationally transferable dynamic capability can be deployed across borders without losing its potential to generate competitive advantage. This distinction was first developed by Rugman and Verbeke (1992, 1993) within the context of the theory of the multinational enterprise. It reflects a resource based re-interpretation of the national responsiveness-integration framework developed by Bartlett and Ghoshal (1989). This distinction is crucial from an international business perspective, because it specifies the geographical boundaries within which dynamic capabilities may lead to competitive advantage. The above analysis is represented in [Figure 3](#). The horizontal axis reflects the firm's ability to create a localised capability (weak or strong) whereas the vertical axis describes the creation of an internationally transferable capability (weak or strong).

In the next section, it is argued that the international business literature already largely incorporates government as a sixth force relevant to strategy formulation. In the last section, the conceptual framework described above is applied to one specific area of government regulation, namely environmental regulation. This area is especially relevant because of its increasing importance to international business and the prevailing perception in a large body of literature that it may induce firms to develop green capabilities, Rugman and Verbeke (1998a).

³ Such an effective first-mover response, to gain competitive advantage, can result from firm-specific routines within the company (e.g., processes characterised by causal ambiguity and tacitness), positions (e.g., specific assets, asset mass efficiencies) and paths (e.g. importance of learning curve effects, time compression diseconomies faced by rivals, time based tasks, preemption of scarce resources), see Reed and DeFillippi (1990), Dierickx and Cool (1989), Nehrt (1998), Dixit (1980), Ghemawat (1986), Lieberman (1989), Kerin et.al (1992).

4. Government regulation as the sixth force in strategy formulation

Boddewyn and Brewer (1994) have argued that country borders contain resources and institutions which are nation specific, such as national and human factor endowments, market potentials, value systems, etc. Most of these elements can easily be translated into industry and firm level impacts through the use of the five forces model. Levitt's (1983) observations on the globalization of markets and Ohmae's (1990) views on the "borderless" world suggest, from a normative perspective, that firms should attempt to bridge and even eliminate such differentials among nations. However, the concept of "state", with a focus on political sovereignty, implies that "generic" models such as the five forces model to guide strategy cannot be merely extended to the international business context, Boddewyn and Brewer (1994).

Indeed, it is interesting to observe that Porter (1986) himself, when discussing the concept of generic strategies in the context of global industries explicitly unbundled the "focus" strategy into three sub-strategies : global segmentation, national responsiveness and protected markets, Rugman and Verbeke (1993). The last strategy, especially, builds upon the assumption that government intervention has both an indirect impact on the firm, through the five forces and a direct impact. For example, sheltering a domestic industry from international competitors implies that the number of rivals is de facto reduced and the protected firm thereby obtains valuable "breathing space". The five forces model is adequate as a tool to analyse the firm level impact of government shelter. However, the creation of shelter may also lead a foreign firm to shift entry modes, e.g. from exports to FDI, irrespective of the shelter's impact on the MNE's market environment. As suggested by Yarborough and Yarborough (1990), government, through defining and enforcing property rights and the rules of competition, substantially affects the functioning of industry and the relationships among market forces. However, it may also have an immediate impact at the firm level, irrespective of what it does at the industry level. Here, the 'enacted environment'-concept (Weick, 1979) prevails.

Boddewyn (1988) has enriched the now dominating paradigm in the field of international business, namely Dunning's (1980, 1988) eclectic paradigm, by adding a political dimension. He demonstrates the relevance of government both as a key driver of industry competition and as a force to be managed appropriately at the firm level in order to gain competitive advantage. Rugman and Verbeke (1990), following Boddewyn (1988),

have used the term ‘fourth generic’ strategy to describe specific types of firm behaviour aimed at influencing government regulation.

In fact, various strands of international business research demonstrate the need to include government regulation as a separate force driving industry competition, including the dependency models, neo mercantillist models and bargaining models, Brewer (1992). In particular bargaining models figure prominently in the literature, Encarnation and Wells (1985). Several authors, including Kobrin (1980), Poynter (1985) and Yoffie (1993) have described the differential impact of government regulation among industries. In addition, Salorio (1993) has analyzed the diverging strategies of firms vis-a-vis government regulations in terms of the international configuration of their value added activities. Hence, both from a descriptive perspective at the industry level and from a more normative perspective at the firm level, government significantly affects what constitutes an effective strategy.

More fundamentally, as already mentioned in the previous section, Rugman and Verbeke (1990, 1991, 1992,) have demonstrated that capabilities can be developed in areas dominated or largely influenced by government regulation such as trade and industrial policy, environmental policy, etc. This thinking was extended in Rugman and Verbeke (1998a, 1998b). Even if it is assumed that government serves national interests and the public good, (a view that has often been challenged in the international business literature), firms may still perceive government regulation as an intermediate good (or “resource”) that can be influenced or used in the pursuit of strategic objectives, conditional upon the presence of firm level dynamic capabilities⁴.

5. Six cases of dynamic green capabilities and environmental regulation

In this section, six well known case studies on corporate responses by MNEs to environmental regulation are discussed. Each case demonstrates the relevance of adopting a six forces model rather than a five forces one when responding at the firm level to external changes. In addition, dynamic capabilities in responding to environmental regulation, as measured by effective first mover response, appear to be critical to achieve competitive advantage. The six cases discussed below are Du Pont, Laidlaw, Allied Signal, Honeywell,

⁴ Firms may also use government as a tool to obtain shelter, especially when they lack capabilities to compete efficiently in the market place, but this issue is dealt with in other work, see Rugman and Verbeke (1990).

McDonald and Xerox.⁵

5.1. *Du Pont*

In 1987, the Montreal protocol was signed, an international accord designed to reduce the production of CFCs (chlorofluorocarbons), considered to contribute substantially to ozone depletion. At this point in time, Du Pont was the world's largest producer of CFCs with 1987 revenues of \$600 million from this business. CFCs were manufactured by Du Pont in each of the Triad blocks (North America, Europe and Japan). Even before the Montreal Protocol, the U.S. Environmental Protection Agency (EPA) with other governmental departments had already obtained a ban on specific 'non-essential' uses of CFCs in 1978 (e.g. on aerosol propellants except for specific medical and military uses) and further restrictions were contemplated.

After initial attempts to oppose CFC regulations until the early eighties ('citing the uncertainty of the science'), Du Pont engaged in a dual strategy oriented toward both market forces and government regulation simultaneously. Given the ban on a number of uses, it pursued a low cost strategy to retain price sensitive customers of CFCs, hoping that they would remain loyal once Du Pont would demonstrate a leadership role in providing substitutes (left-hand side in Figure 1). As regards the non-market forces, Du Pont was instrumental in setting up the Alliance for Responsible CFC policy, consisting of both CFC producers and consumers to lobby Congress and the EPA (right-hand side in Figure 1).

In terms of effective first mover behaviour it is interesting to observe that Du Pont clearly developed a dynamic capability, namely the '*wolf in sheeps clothing*' capability (ability to portray private interests as instrumental to the public good) to cope with governmental regulation and led industry opposition to further CFC controls. In fact, it had already taken a lead role in research and research scanning regarding ozone depletion in 1972, so as to pre-empt government initiatives that would harm the industry, while being based on incomplete scientific evidence. In contrast, until 1986 it did not consistently attempt to gain a first mover advantage vis-a-vis market forces through developing

⁵ Harvard Case Studies: DuPont Freon® Products Division (A), HBS Case 389-111; Laidlaw Environmental Services, HBS Case 794-016; Allied Signal: Managing the Hazardous Waste Liability Risk; HBS Case 793-044; Honeywell's Tushino Project, HBS Case 794-064; McDonald Corporation 1992: Operations, Flexibility and the Environment HBS Case 693-028; Xerox: Design for the Environment, HBS Case 794-022.

substitutes as it spent little on substitute development because of their expense.

Du Pont was therefore positioned in quadrant 1 of Figure 2. It was, paradoxically, only at the time of the Montreal Protocol negotiations that Du Pont adopted a quadrant 3 of Figure 2 strategy, whereby the new regulatory context was viewed as a market opportunity and a technological trajectory was pursued in the area of substitutes, building upon the concept of time compression diseconomies that would be faced by rivals.

Finally, as regards the international context, Du Pont clearly pursued a strategy driven primarily by U.S. regulations. Its focus was on developing localised capabilities to adequately deal with U.S. regulation, in spite of being the most global CFC producer (in terms of geographical presence). It pushed for international environmental regulations, because foreigners were not subject to a ban as early as in the United States, thus giving them an 'unfair' advantage. Here, Du Pont could be positioned in quadrant 4 of Figure 3.

5.2 *Laidlaw*

The Laidlaw case discusses the 1992 North-American restructuring of this Canadian based service firm, active in areas such as transport, environmental services and waste systems. The case's focus is on the hazardous waste division. Its main strategic challenge is typical for most Canadian MNEs, namely the choice between a country based strategy and North American integration in a context whereby 70% of revenues come from the United States. This firm, which was the result of acquisitions (354 between 1959 and 1990), had maintained a geographical divisional structure in Canada (each facility handled only the waste generated in the province where it was located) and a more functional network structure (disregarding state boundaries) in the United States. In Canada, Laidlaw's environmental services had a dominant market position, whereas in the United States their position was built on cost and customer service advantages arising from niching and flexibility (use of transfer stations to store and then pool small quantities of waste, thus reducing disposal costs). In the United States, one firm was substantially larger than Laidlaw in the area of hazardous waste, namely Chemical Waste Management Inc. This latter firm's main competitive advantage resulted from seven fully permitted landfills, leading to scale economies and tied up business for many U.S. (waste) generators. Laidlaw had only three such landfills.

In term of the conceptual framework developed in this paper, Laidlaw's

restructuring efforts represented a response restricted to the left-hand side of Figure 1. The regulatory regimes in the United States and provinces such as Ontario and Quebec were very similar and cross border transport of hazardous waste was permitted, the extension of the network approach to Canada was expected to reduce costs and increase flexibility, especially given that most Canadian facilities were located close to the U.S. border. However, this border was also viewed by management as an 'iron curtain'. The import into Canada of U.S. waste was subject to voluntary import restraints. It is interesting to observe that Laidlaw clearly possessed two dynamic capabilities which, when environmental regulation became stricter, gave a first mover response vis-a-vis the market forces. First, its experience in absorbing acquisitions made it convenient to purchase additional companies and thereby additional permits for waste disposal. Second, its service orientation in the United States made the firm eager to test new strategic service options such as mini-centres (transfer stations with a sales capability, full environmental service provision). No dynamic capabilities were developed directly in the area of U.S. government regulation, where the firm adopted a primarily reactive approach (quadrant 4 in Figure 2).

As regards its international strategy, the 1992 situation would position the firm clearly as building almost exclusively on localised capabilities (trying to move from quadrant 2 to quadrant 4 in Figure 3) but with an intent to develop internationally transferable strengths that would span the whole of North America. Here, it is paradoxical, however, that gaining internationally transferable network capabilities in the market area (e.g. scale economies as a result of increased Canadian imports of hazardous waste generated in the United States) could lead to a disruption of localised strengths vis-a-vis regulators especially in Canada, who would undoubtedly be sensitive to a public outcry on the disposal in Canada of U.S. hazardous waste.

5.3. *Allied Signal*

The Allied Signal case focuses on the challenge of diffusing U.S. environmental practices to Europe, in the early 1990s. It is driven by the possible EU adoption of U.S. type environmental liability regulations, more specifically the Comprehensive Environmental Response, Compensation and Liability Act of 1980, also known as the Superfund-regulations. The Superfund philosophy is that both hazardous waste generators and all

actors involved in subsequent waste handling become permanently liable for this waste⁶.

The main problem facing this diversified chemical corporation was its administrative heritage of dispersed decision making on regulatory compliance. Its main weakness was the lack of economically justifiable on-site hazardous waste treatment facilities (small waste volumes) and the resulting dependence on off-site commercial disposal facilities. Although a special department had been set up to handle environmental affairs after the establishment of the US Environmental Protection Agency (EPA) in 1970, (right-hand side of Figure 1) no effective dynamic capability was developed for a first mover advantage, whether through influencing the five conventional forces driving competition or government regulation. The case data suggest, in spite of a number of successes and environmental management improvements over time, a largely reactive approach, a lack of commitment to waste reduction in the individual plants and a relatively ineffective implementation of corporate policies in this area. Hence, in terms of our conceptual framework, Allied is positioned in quadrant 2 of Figure 2, lacking both a market-oriented and regulator-oriented first mover response.

In terms of international strategy, the interesting insight arising from this case is that in 1992, when environmental performance levels in the United States were viewed as satisfactory by management, no real dynamic capability existed, certainly not an internationally transferable one, but not even a localised one that could be of use for diffusion purposes worldwide, in this case to Europe. Hence, the challenge was not to transform a localised capability into an internationally transferable one (shift from quadrant 4 to quadrant 3 in Figure 3) but to actually build a dynamic capability (shift out of quadrant 2).

5.4. *Honeywell*

Honeywell is the world's premier manufacturer of industrial, commercial and residential control systems. The case describes Honeywell's penetration of the former Soviet Union markets in the early 1990s in the area of energy conservation controls. It faced high exogenous uncertainty over the evolution of both market forces and regulatory institutions. The firm was driven towards becoming the 'co-creator' itself of a new market system but

⁶ For a detailed analysis of the Superfund regulations, see Note on the US Hazardous Waste Management Industry, Harvard Business School case no 9-792-067, 1992.

faced the challenge of deciding how far it should engage itself on such a path. Honeywell had to balance the benefits for selling energy conservation and process controls into the emerging economies against the political risks and economic costs of operating there, while simultaneously taking into account the strategies of its main rivals.

The interesting feature of this case is that market forces and regulatory forces in Russia largely coincide so that Honeywell needed to pursue a strategy whereby changes in government policy had to be taken into account as the single most important external parameter (right-hand side of Figure 1). In this context, obtaining a first mover advantage against rivals by developing a dynamic capability in coping with government regulations in fact equaled a dynamic capability vis-a-vis market forces (quadrant 3 in Figure 2). This dynamic capability in the form of privileged linkages with government and related institutions was expressed through establishing pre-emptive joint venture structures to implement high visibility pilot projects supported by government.

Finally, Honeywell viewed itself as an MNE with globally attractive products and efficient manufacturing systems. In the former Soviet Union, however, it needed to complement this perspective with a localised dynamic capability that would cope with both changes in the non-market environment and institutional uncertainty (quadrant 4 in Figure 3). However, the development of such a capability required substantial firm-level resource commitments, with a very uncertain return, so that Honeywell used the 'wait and see' option rather than actually making use of its dynamic capabilities.

5.5 *McDonald's*

McDonald's is the world's largest fast food provider. The case analyses this firm's collaboration with the Environmental Defense Fund (EDF) in the early nineties. EDF was one of the U.S.' most respected and effective public interest organisations working to protect the environment. It had a strong reputation for its legal work and law suits against firms and government, as well as its successful lobbying for environmental regulation.

McDonald's traditional strengths had been twofold. First, its supplier linkages were critical. McDonald's acted in a flagship capacity for a large network of providers of intermediate outputs. Second, McDonald had achieved 'consistency' in its delivery system, which was critical to consumer loyalty in this service business.

In spite of its poor environmental image, McDonald's viewed the environmental

challenge as an opportunity to develop a responsible environmental strategy. The aim of McDonald's was to develop a dynamic capability that would make environmental action an ongoing concern in the firm that would cover all the firm's activities. The interesting feature of this case is that McDonald wanted to change its conventional linkages with the market by introducing environmental concerns into the entire value chain but thought it could only do this through a new linkage with the non-market environment (EDF) (right-hand side of Figure 1) which did not even want to be financially rewarded for its support to this strategy. McDonald's viewed the use of the non-market primarily as a tool to improve the image and quality of its delivery system. For example, it greatly increased the recycled content of the boxes provided by suppliers and it created a market for the recycled material generated by its own outlets. Its aim was therefore to create a first mover advantage vis-a-vis rivals as a result of a privileged linkage with non-market forces (quadrant 4 in Figure 2). More specifically, McDonald's new dynamic capability in dealing with environmental issues had a threefold basis inspired by EDF : environmental issues had to be viewed as relevant in all of McDonald's value chain activities; all solutions to perceived problems had to be incremental and complementary to other measures; environmental action had to become an ongoing concern on a par with more conventional business conduct.

Finally, as regards its international strategy, the environmental management initiative was U.S. driven (quadrant 4 in Figure 3) but the ultimate goal was to augment this localised capability so that it would become globally useful (quadrant 3 in Figure 4).

5.6. XEROX

Xerox, a global company in office equipment and an industry leader in design for the environment, faces the challenge of designing a global environmental strategy in 1990. Its key tool is 'asset management' : ' the management of products and inventory to minimize their environmental impact at all stages of the product life cycle, particularly at the end of life'.

Xerox's actions were focused primarily on the market (left-hand side of Figure 1). It attempted to develop market driving dynamic capabilities which would allow it not to have to worry directly about compliance because the firm would meet any standards imposed by government anyway. However, such an approach required 'anticipatory' behaviour, placing Xerox in reality on both the left and right in Figure 1. As regards the development of

dynamic capabilities, Xerox's approach was one of 'institutionalisation', i.e. pushing both market forces (especially suppliers but also customers) and even government (which should 'serve as a model customer') to adopt its own firm level standards. Here, it was positioned in quadrant 3 of Figure 2. It adopted a benchmarking-approach, comparing itself even with firms from other industries, to continuously monitor its own environmental performance. It also pushed for 'sensible legislation' relying upon a voluntary adaptation process. In fact, its key dynamic capability was its 'environmental leadership' philosophy adopted by top management and aimed at systematically improving industrial and environmental performance simultaneously.

As regards the firm's international strategy, Xerox's focus was dual with a view to developing both localised and internationally transferable green capabilities, i.e. in quadrant 3 of Figure 3. For the former, it was viewed as critical to be nationally responsive to environmental legislation in each host country. In terms of the latter, information on green consumer behaviour in Europe was used to change managerial behaviour and practices in the United States.

6. Conclusion

We have demonstrated, using examples of firm-level responses to environmental regulation, that government intervention (and in a broader sense, the non-market environment) constitutes the 'sixth force' driving industry competition and guiding strategic management change. Not all firm-level responses to environmental regulations can be simply interpreted in terms of a required change vis-a-vis the five conventional forces driving industry competition. In a number of cases, firm behaviour is geared directly toward the non-market environment itself. This is especially important for multinational enterprises faced with regulatory systems imposed by at least two sovereign governments.

The main implication of a 'six forces' approach is that firms may attempt to develop a dynamic green capability, allowing not only an effective first mover response to environmental regulation indirectly vis-a-vis the five forces, but also directly vis-a-vis government itself. The case studies helped us to identify a dynamic capability in dealing with government for Du Pont ('wolf in sheep's clothing' capability), Honeywell (privileged linkages with government and related institutions), McDonald's (privileged relationship with non-market forces) and Xerox ('environmental leadership' philosophy). Laidlaw has

only built a localised dynamic capability while Allied Signal has failed to develop any dynamic capabilities in dealing with government environmental regulations.

Finally, the distinction between a localised green capability as compared to an internationally transferable one is significant, because only the latter can be diffused across borders. The joint development of both localised and internationally transferable green capabilities undoubtedly represents one of the main challenges facing multinational enterprises today.

Figure 1

**The Impact of Changes in Environmental Regulations
on Corporate Strategy**

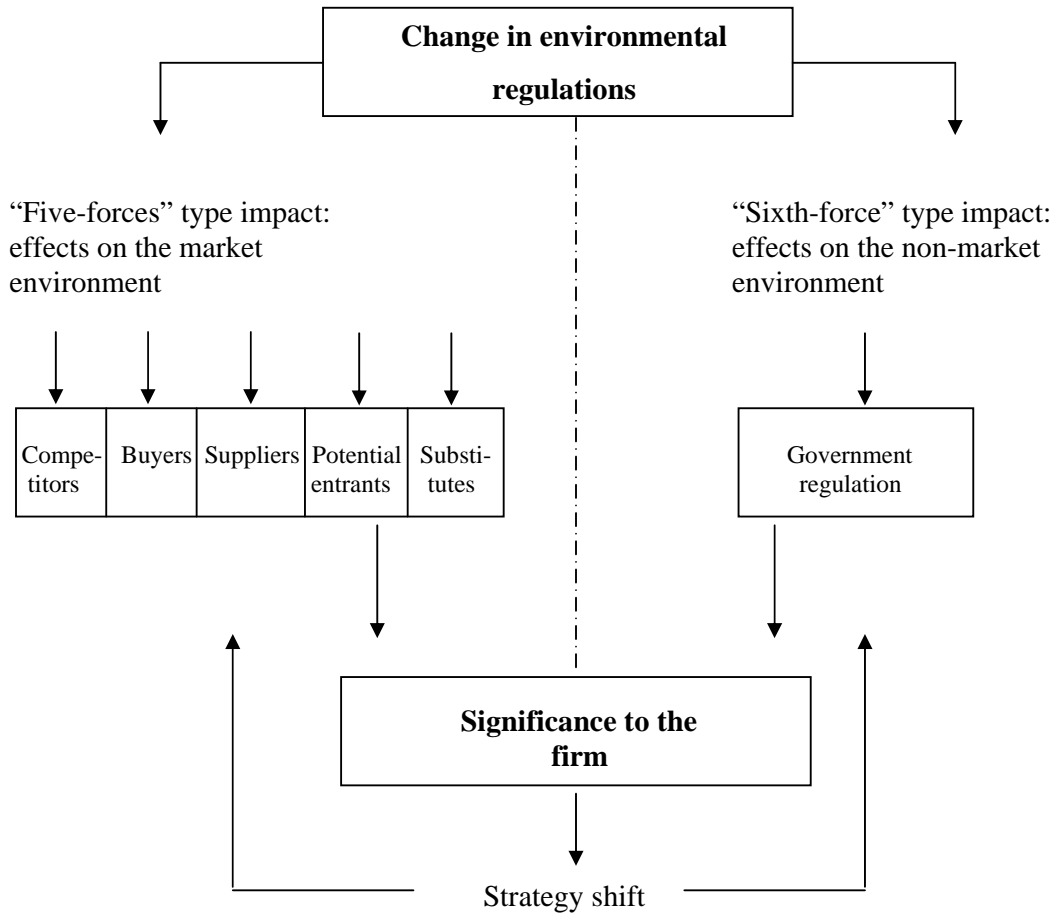


Figure 2

**Effective First Mover Response
to Environmental Regulations**

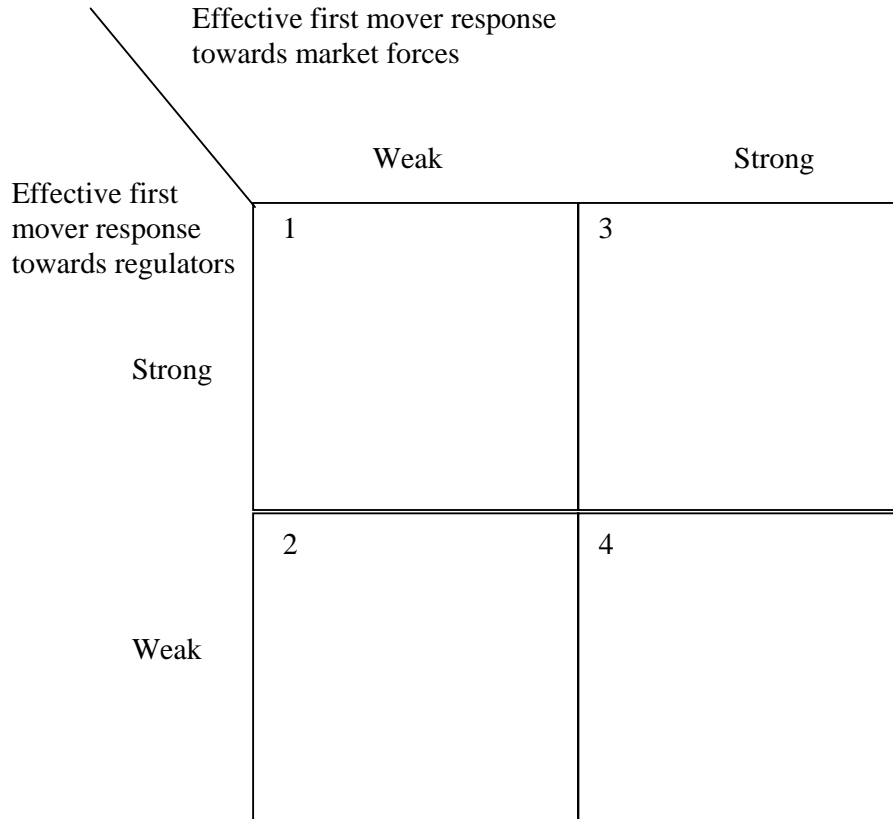
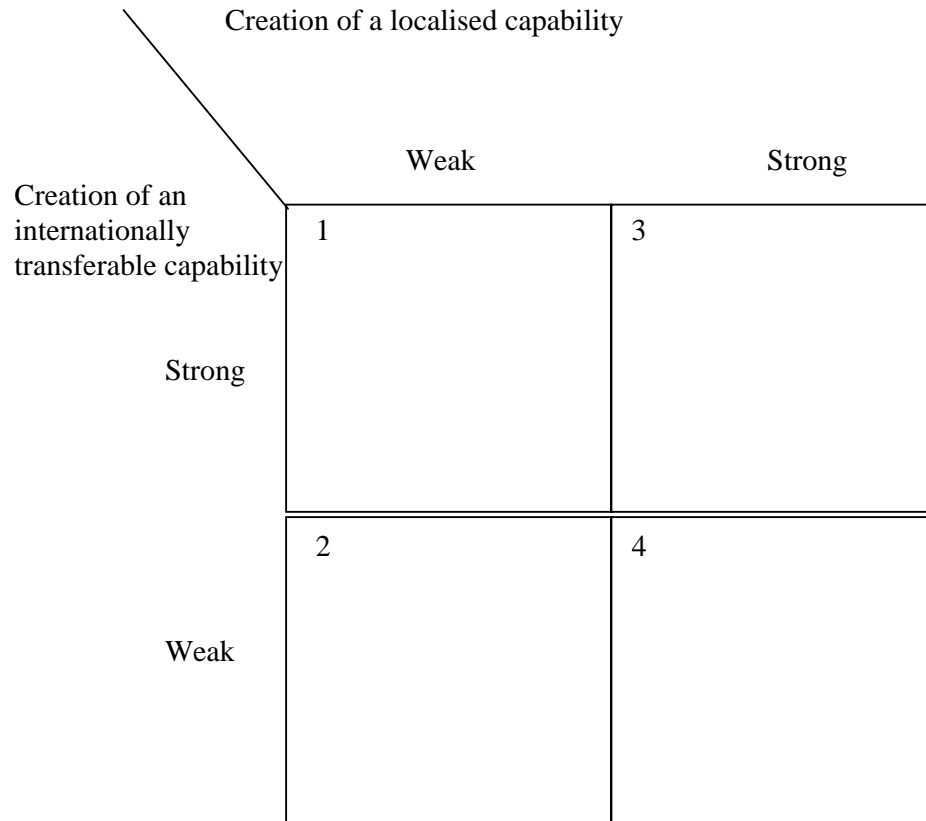


Figure 3

Dynamic Green Capabilities in MNEs



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