

Necessity as the Mother of 'Green' Inventions: Institutional Pressures and Environmental Innovations

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Business organisations are under increased scrutiny for the way they operate and affect the environment (like, release of toxic waste or carbon emissions). A possible response to these increasing pressures is environmental innovation, using which firms can migrate to sustainable ways of doing business. However, some pertinent questions emerge in this regard: *are businesses engaging in environmental innovations? What influences a firm's environmental innovation efforts?* This research seeks to find answers to these questions. In this study, the authors analyzed environment-related patents of 326 publicly traded firms in USA to understand the drivers of environmental innovation. The gist of the study and its key findings and implications are presented in this summary.

Environmental Innovation

Environmental innovation is defined as the development of products, processes and services that reduce damage to environment. It aims at prevention of pollution. Environmental innovation is: risky, needs large financial commitment and gives returns in the long term. Some scholars also suggest that it provides competitive advantage to the firm. However, little is known about why some firms engage more in environmental innovation than others do. More importantly, it is critical to know the conditions under which firms engage in environmental innovation.

Influences on Environmental Innovation

Citing 'institutional theory' literature, the authors argue that firms undertake environmental innovations due to their need to move toward conformity with regulations or industry norms or to protect their societal legitimacy. They suggest that three major influences determine a firm's pursuit of environmental innovations:

(1) Regulatory Pressures: These are typically exerted by government or its agencies that have legal jurisdiction over the firm in whole or in part. Non-compliance of regulations is a big business risk as the firm can be derecognized or penalized in monetary or non-monetary terms or legal action can be initiated against the firm. Thus, regulatory requirements force a firm to develop environmental innovations that make them compliant.

(2) Normative Pressures: These pressures typically come from the professional bodies and other social actors that define the desired behaviours and standards for group members. Meeting those standards gives societal legitimacy to the firms. For instance, environmental NGOs can establish voluntary emission standards and pressurize businesses to adhere to that standard.

(3) Institutional Pressures and Heterogeneity in Firm Responses: Even when firms face similar pressures of regulations and norms, they respond differently in terms of developing

environmental innovations. If there had been a large gap between a firm's environmental performance and industry standards, it is more likely to develop environmental innovation, compared to those developed by a firm that had been more compliant.

Key Findings

The statistical analysis led to the following key findings: (1) Regulatory pressures were found to have a significant positive relationship with the firm's level of environmental innovation. (2) Normative pressures also had a significant positive influence on the firm's environmental innovation. (3) It was found that for any given level of institutional pressures, firms that had caused larger environmental damage relative to industry standards were likely to develop more environmental innovations. Thus, the external checks of regulatory, normative and institutional pressures played a key role in shaping a firm's environmental innovations.

Practical Implications

The regulatory pressures on firms for adopting social responsibility and environmental control measures are likely to increase in future. Organisations would also have to conform to norms among peers in order to ensure their societal legitimacy. Thus, instead of being reactive to the tightening noose of regulations, family businesses would do well to be proactive in initiating and adopting environmental innovations.

This will also help family businesses build a competitive advantage through more effective and efficient ways of utilizing natural resources. It will establish them not only as compliant organisations but also as forbearers of environment protection. Instead of waiting for the regulations to catch up, family business managements can proactively adopt better sustainability practices. These innovations will also help family firms earn goodwill and respect from customers and society.

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