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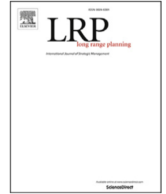

Strategic responses to imposed innovation projects: The case of carbon capture and storage in the Alberta oil sands industry

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ABSTRACT

Today's ‘activist’ attitudes and strong power of non-market stakeholders (such as government agencies, non-governmental organizations, labor unions) have triggered the phenomenon of imposed innovation projects. These are investment projects carried out by profit-seeking firms primarily in response to the demands of influential non-market stakeholders. Such projects are supposedly instrumental to the emergence of new, socially beneficial products and production processes. We use a stakeholder management perspective to analyze the case study of a set of salient imposed innovation projects in the realm of carbon capture and storage (CCS) technology, pursued in the 2011–2014 period by a number of energy companies in Western Canada. We describe the peculiarities of these projects and reveal the scope and drivers of firm-level actions in response to the pressure to pursue imposed innovations. The findings reveal a spectrum of strategic responses to imposed innovation pressures, with varying degrees of cooperation with other economic actors, and varying levels of engagement to tailor the imposed innovation to the firm's technological profile. We develop a set of propositions on the performance implications for firms implementing imposed innovation projects. The paper concludes with recommendations for policy makers concerned with the improved diffusion and effectiveness of such projects.

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Introduction

Why does a firm pursue a particular innovation project? The mainstream economic theory of innovation emphasizes the motive of maximizing expected profits from pursuing innovation projects that serve the needs of *market stakeholders*, i.e., customers and value chain partners, including suppliers and partnering distribution channels (Baron, 1995; Stevens et al., 2005). Here, market-related parameters (demand, industry structure, prices of production factors) determine the extent and nature of firm-level engagement in innovation activities. These parameters ‘pull’ the innovation by providing high-powered incentives to firms pursuing shareholder wealth (Dosi, 1988; Lundvall, 1992; Biggart and Delbridge, 2004). The strategic management literature refines this reasoning, concentrating on the conditions for market stakeholders to support the firm in

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capturing Schumpeterian rents, i.e., the innovator's temporary abnormal returns due to successfully implemented innovation projects (Hitt et al., 2001).

Yet, these mainstream views on the microeconomic stimuli to innovate, emanating from market stakeholders, do not take into account the activism and substantial power of *non-market stakeholders* – such as government regulators, non-governmental organizations, labor unions, and more generally special interest groups (Baron, 1995). Market stakeholders interact with the firm through microeconomic mechanisms, and perform an essential role in its value chain, but non-market stakeholders influence the firm on a non-economic basis (Cummings and Doh, 2000; Stevens et al., 2005), *inter alia* through coercion and the threat of temporary or indefinite withholding of the firm's social license to operate. For example, the government-mandated engagement of companies implementing environmental innovation projects or safety-focused ones, is typically divorced from the pressure of market actors. In most cases of forced innovations, it can be argued that if market stakeholders really desired these, sufficient incentives would be in place in the market to secure implementation, and there would be no need for government intervention.

In this paper, we conceptualize the term '*imposed innovation project*' (abbreviated as *imposed innovation*) as an investment project undertaken by a for-profit firm under the pressure of non-market stakeholders acting through non-market means (Berrone et al., 2013). The expressed purpose of these stakeholders is to support the creation of new products and production processes that will serve societal needs. Analysis of non-market actors influencing firm-level technological trajectories has often been performed, but the phenomenon of imposed innovation projects lacks systematic attention in the extant literature. The current understanding of the phenomenon is based on a set of loosely related theories, frameworks and empirical findings, all focused on partial aspects of imposed innovations, see below (e.g., Berrone et al., 2013; De Marchi, 2012; Kesidou and Demirel, 2012; Lee et al., 2011; Popp et al., 2011; Okereke, 2007; Gerard and Lave, 2005). At the same time, there has been a rapid increase of imposed innovations, largely driven by activism of non-market actors who pursue broader, societal goals (Biggart and Delbridge, 2004). Here, the focus has often been on corporate social responsibility (CSR) engagement, reflected in tighter environmental regulations and rising demands for 'responsible' innovation (e.g., in the realm of non-fossil fuel energy innovations).

The above research gap, and its practical relevance to firm-level innovation strategy, motivated the current study, where we concentrate on the following research questions: (1) what are the peculiarities of imposed innovation projects (beyond the definitional property of being demanded by influential non-market stakeholders); and (2) what are the scope and drivers of firm-level actions in response to the pressure to implement imposed innovation projects. Through answering these questions, we contribute to the strategic management literature, particularly stakeholder management thinking and innovation studies. We propose an integrative conceptual framework for analyzing imposed innovation projects. This framework addresses the challenges of managing imposed innovations, at both the firm-level and the public policy level.

The paper starts with a brief review of the prior literature, and positions the imposed innovation construct within the broader theme of stakeholder management. Then, drawing on empirical evidence from a case study of salient imposed innovation projects in carbon capture and storage (CCS) technology – pursued in 2011–2014 by oil extracting companies in Western Canada – we identify the peculiarities of imposed innovations. We propose a classification scheme of strategic responses to imposed innovation pressures. We conclude with recommendations for firms implementing imposed innovation projects, and for policy makers interested in improving the effective pursuit and diffusion of imposed innovations.

Imposed innovations: theoretical background

The pressure to innovate: a stakeholder theory perspective

The extant literature on stakeholder management emphasizes the relationship between the firm and the various individuals or groups that can either influence the firm or be influenced by it, i.e., its stakeholders (Freeman, 1984; Verbeke and Tung, 2013). From the instrumental stakeholder management perspective (Donaldson and Preston, 1995), satisfying the requirements of powerful stakeholders may be a pre-requisite for an organization's survival, even at the expense of micro-level economic value creation and capture (Mitchell et al., 1997).

The firm's stakeholders can be broadly categorized into two distinct groups: market- and non-market stakeholders (Baron, 1995; Stevens et al., 2005). The market stakeholders –customers, suppliers, and buyers – directly influence the firm's market environment and interact with the firm through the economic mechanisms described in the mainstream theories of market-induced innovations ('market-pull' frameworks) (Cummings and Doh, 2000). The non-market stakeholders, on the other hand, interact with the firm on a non-economic basis (Stevens et al., 2005). Such stakeholders (government agencies, NGOs, special interest groups, etc., see Baron, 1995) perceive firms not merely as organizational units for creating and capturing economic value at the micro-level, but also as social systems that must deliver other types of value – related to social and environmental responsibility (Stevens et al., 2005). Powerful and activist non-market stakeholders typically impose firm-level innovations through coercion and threats of taking away the firm's social license to operate. Here, non-market stakeholders could prevent the firm from operating, either temporarily or permanently, and either directly (through regulation) or indirectly (through negatively affecting the firm's reputation) (Berrone et al., 2013).

The distinction between market and non-market stakeholders is based on their interactions with the firm (Stevens et al., 2005). As a result, one and the same actor could potentially influence the firm as both a market and a non-market stakeholder. For example, government acting as a non-market stakeholder refers to its regulatory powers. But government can also act as a

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