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# Institutional legitimacy of non-profit innovation facilitators: Strategic postures in regulated environments

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## ABSTRACT

Sustainable production and consumption is a hot topic in innovation policies. Most European producers of electrical and electronic equipment have joined collective compliance schemes - generally called Producer Responsibility Organizations (PROs) - to guarantee compliance with the mandatory requirements that enforce the Extended Producer Responsibility principle. The role of PROs is to: (1) reduce the environmental impact of the end-of-life of products, and (2) stimulate innovation pathways in the activities conducted in the supply chain (collecting, sorting, dismantling and recycling). The paper makes use of data collected with a questionnaire investigated with a Latent Cluster Analysis (LCA) and the data emerging from the grey literature to present an analysis of European PROs operating in the e-waste sector. Results highlight that regulation introducing policy targets in terms of supply chain performance without organizational prescriptions lead to three different strategic postures. Relational rents and institutional rents emerge as the main determinants of those forms. The lack of correlation between the level of strategy proactivity and environmental performances underlines the immaturity of the implementation of the EPR principle that failed to stimulate innovation in the supply chain.

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## 1. Introduction

Regulatory framework conditions are important factors influencing the activities of companies, industries and whole economies [1]. Not surprisingly, regulation is a fundamental condition for the implementation of several sustainable policies. Recently, the interest of politicians has focused on the heavy environmental impact of the end-of-life of products. This interest directly translated into regulations aimed at enhancing the environmental soundness of waste-handling procedures and the reclamation of valuable materials. Those regulations encompass the promotion of business processes that increase the internalization of sustainable practices while stimulating innovation and preserving competitiveness. European policy makers have been introducing Extended Producer Responsibility (EPR) to encourage manufacturers to adopt life cycle thinking to manage product end-of-life costs right from the design phase [2]. With EPR, the responsibility for processing a product at

the end-of-life is shifted from public authorities back to producers in order to reduce the public costs associated with waste management and to create business opportunities for proactive organizations [3]. To date, the European directives inspired by the EPR principle are: End-of-Life Vehicles (ELV) 2000/53/EC, Packaging and Packaging Waste 94/62/EC and Waste Electrical and Electronic Equipment 2002/96/EC (also known as WEEE Directive), which was recast with the Directive 2012/19/EC. Those regulations place the financial and/or operational responsibility for the management of waste generated by consumers with the producer of the good. The term producer refers to manufacturer, seller or importer of the product. In this regulatory framework, despite EPR being – theoretically – an individual obligation of each producer, in practice they often fulfill this responsibility collectively; indeed, producers are free to choose how they organize collecting, sorting, dismantling and recycling activities. For such reason, most of the producers have decided to join together in collective compliance schemes, usually called Producer Responsibility Organizations (PROs), to share skills and resources and guarantee the compliance with EPR requirements. PROs are responsible for organizing the collection of waste from retailers or from public collection points, ensuring environmentally sound treatments on behalf of their member

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companies relieving them of their individual obligation. PROs can be seen as a new form of organization; indeed, as underlined in previous research [4]; the implementation of the WEEE Directive enforced also the role of PROs and the regulatory environment PROs are required to operate in. This particular regulatory setting translated into two dominant operational models allowing producers to meet their extended responsibilities. Those models are: i) multiple and competing PROs and ii) single or non-competing PROs. In some European member states countries, governments have also established national clearinghouses, i.e. authorities in charge of monitoring and regulating the allocation of waste between producers and their PROs. Despite diversity in approaches being embedded in the policy framework [5]; the strategic directions that are currently emerging in European member states countries are still under-explored, which is a missed opportunity for increasing the control over the implementation of the EPR principle. For such reason, the current situation provides an opportunity to explore the strategic responses adopted in heavily regulated environments.

This paper investigates different strategic postures among these new organizations operating in the e-waste sector, a sector where Japan [6] and European countries have been among the first movers in EPR design and implementation [7]. In such context, similar strategic postures may be driven by the emulation of one or more of such organizations that are successful enough. Indeed, PROs are committed to maximizing performance under regulated budget constraints while relying on financial streams coming from fees applied to final customers. Indeed, PROs conduct their operation with a non-profit status; which means that PROs are not able to distribute profits among its members. PROs, to finance their operations, apply fees from producers in proportion to the number of products they have sold or in proportion to their market share. Producers ultimately recover their costs from their customers, either as part of normal product pricing or with a visible recycling fee charged on top of the product [8]. As with other business activities, the success of PROs is proportionate to their ability to create the conditions for limiting trade-offs between risks and opportunities [9].

Understanding the factors leading to the adoption of similar strategies in PROs is necessary to describe competitive dynamics and also to investigate how end-of-life initiatives can lead to innovation in the collection, sorting, dismantling and recycling (e.g. increasing removal of hazardous substances) [10]. How PROs are evolving is a particularly timely issue because, as underlined by many researchers, the initial approaches to EPR have led to unclear achievements especially in the e-waste sector [11,12,67]. Nowadays, as the number of PROs is rapidly increasing, it is quite important to better grasp the factors influencing their strategies in order to enhance the performance of such organizations. Such environment offers also a valuable research setting for studying such dynamics in highly regulated environments.

Unfortunately, little research has focused on understanding the strategic dimensions in PROs. Some studies have investigated the organizational structure and function of a single PRO [8]; while others have analyzed PRO operations under a country-specific framework [13–15]. Most of those studies offer a qualitative approach to strategic decision of PROs. Nowadays, due to the high number of existing PROs, the current situation provides an opportunity to explore strategic responses of PROs in a quantitative way also with an empirically novel approach. Indeed, only a few studies have analyzed in depth how PROs adopt similar strategies through a comparative analysis across all European Union Member States [16].

The overall objective of our exploratory research is to contribute to the existing literature by understanding how PROs act in highly

regulated environments in order to: (1) identify differences and similarities in strategies adopted by PROs; (2) contribute to a better implementation of the EPR principle for achieve higher performances in e-waste collection and treatment; (3) understanding if and to what extent the EPR framework, which enforced PROs, will be able to stimulate innovation in the collecting, sorting, dismantling and recycling sectors.

## 2. Theoretical background and research questions

During recent years the number of European producers interested in guaranteeing compliance with EPR requirements has increased, with a consequent rise in numbers of PROs and collection rates [17]. In fact, most of the European producers of electric and electronic equipment have decided to come together in collective compliance schemes to guarantee compliance with the EPR requirements. The literature offers two main explanations for this: firstly, recycling and treatment activities only become economically feasible when large volumes of items are processed collectively [18]. Secondly, the great regulatory pressure regarding such activities may involve considerable resources [17]; especially in open-loop supply chains [19]. As [4] underline, the implementation of the WEEE Directive resulted in the creation of country-specific PROs. In other words, the WEEE Directive enforced the role of PROs and the regulatory environment PROs are required to operate in. Such aspect, makes PROs a very interesting research setting in terms of strategic postures. There are several definitions of strategic posture in management literature. For example [20], conceptualized strategic orientation in terms of reactors, defenders, analyzers, and prospectors [21]. divide firms into shapers, adapters and those reserving to play. However, most of those definitions identify two categories of organizations, distinguishing between inactive/reactive and active/proactive ones [22]. On the one hand, inactive/reactive organizations lack of a consistent strategy and are determined to operate in a stable market domain with particular established structure. On the other hand, active/proactive organizations seek to foster innovation and change. Such organizations emphasize new opportunities, emerging trends, and technology and generally they maintain a competitive position and tend to be pioneers of their sector [23]. Several researchers tried to investigate the determinants of those strategic postures. For example, [24]; explains how perceived uncertainties and external pressures induce firms to adopt similar postures in business. In fact, according to the sociological view of institutional theory, similar strategic postures are motivated by institutional legitimacy [24]. Jennings and Zandbergen [68] were the first to apply institutional theory to provide an explanation of the adoption of environmental strategies. According to Jennings and Zandbergen [68] coercive forces – mainly regulations and regulatory enforcement mechanisms – have been the main stimuli of such strategies. In line with most institutional theorists [24,25]; they claim that firms working in the same field are affected in similar ways by institutional forces. [26]; drawing on institutional theory, argue that greater regulatory and normative pressures concerning environmental issues increase the propensity of companies operating in the same context to adopt similar strategic postures. According to institutional theory, the implementation of the WEEE Directive could influence PROs in adopting the same strategies generating the similar strategic posture (i.e. institutional isomorphism). Thus, our first research question is:

*RQ1 Does a strict regulatory framework, which at the same time introduced the role of PROs and the regulatory environments, induced all PROs to adopt the same strategic posture ?*

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