

13th Global Conference on Sustainable Manufacturing - Decoupling Growth from Resource Use

## Sustainable urban mobility through the perspective of overcompliance

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### Abstract

Being at the frontier with regard to sustainable aspects of manufacturing may serve as competitive advantage due to the increasing trend of consumer awareness. In order to adhere to the consequent pressure from external stakeholders such as customers, investors, competitors, interest groups and local municipalities, companies voluntarily overcomply with social and environmental norms. This paper explores the incentives for the industry to embrace overcompliance as a strategic means to gain competitive advantage and take the lead in sustainable manufacturing. Examples from recent industrial trends are used to present the relevance of the combination of overcompliance and sustainability in the field of mobility. Studies of the Collaboration Research Center 1026 are presented as additional examples of strategic overcompliance with emission standards in the field of sustainable urban mobility.

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### 1. Introduction

Sustainability refers to meeting human needs without overburdening nature and principally aims for higher economic, environmental and social standards in different areas of human living [1]. Overcompliance is instantiated as the overfulfilment of standards that relate to environmental and social sustainability. As consumers' awareness towards corporate responsibility increases [2], opportunities arise through overcompliance strategies. Businesses can gain access to new customer segments, reduce legislative pressure and fend off anti-company lobbying activities. The effects of this strategy are however uncertain, as it relates to individual values and preferences in different cultural frames.

This paper addresses overcompliance and sustainability from the viewpoint of shared motives and goals incentivising these industrial trends. It summarises the evolution of sustainability in terms of regulatory compliance and voluntary overcompliance in Chapter 2. In addition to the motives and goals of performing beyond the regulatory limits in favour of sustainability, the implementation and gained benefits are

explained in Chapter 3. Following a brief introduction to urban mobility, recent industrial trends in this field are explored from the shared perspective of overcompliance and sustainability in Chapter 4. Studies of the Collaboration Research Centre (CRC) 1026 "Sustainable Manufacturing – Shaping Global Value Creation" in the field of sustainable urban mobility are also introduced in this chapter.

### 2. From compliance to overcompliance

The idea of sustainability originates in the environmental movement that started drawing attention in the 1960s, when pressing problems such as water and air pollution were surfacing in an increasing number of crowded urban areas [3]. The initial resolution of these issues represented the environmental problems as a consequence of the difference between the *market price* faced by the consumers and the *true price* paid by the environment and ultimately the consumers themselves. The proposed countermeasure was the introduction of surrogate prices in the form of taxes or fines for the use of

certain scarce environmental resources, such as clean air and water [4].

Rising public concerns supported the initial policies that aim to control the industrial practices economically through strict auditing and violation procedures. Companies adopted environmental codes of conduct and auditing programs, in order to avoid the potentially high costs of fines, legal cases and negative publicity [5]. As a result of the increasingly stringent and multifaceted legislations, the term *regulatory compliance* surfaced in the global industrial landscape and denoted the strategic objective to conform to social and environmental regulations.

Conventional policies stemming from this era prescribe the quantity limits on detrimental emissions and specify fines for violations. In the last decades, this regulatory regime of restrictions and fines has contributed to a better protection of the environmental and social well-being. However it also put the major focus of the measures on the reduction of emissions and encouraged ex-post solutions (e.g. end-of-pipe techniques, offsite treatment or even illegal dumping and landfilling) rather than in-depth pollution prevention [6,7]. Economic viability outweighed environmental sensitivity [8] and the ethical expectations of the society [9]. Additionally, the monitoring and enforcement activities have major additional disadvantages for both policymakers and industry. On the one hand, protracted development and enforcement processes are occupying a large amount of resources [9–11]. On the other hand, possible resource cutbacks and associated downturns in government and public pose vulnerability to inconsistent and inadequate enforcement [12]. Inflexibility and over-formality of jurisdictional constraints on the subject matter, approach and scope cause a heavy bureaucratic burden [9].

These drawbacks triggered improvements in policymaking. The United Nations Conference on the Human Environment (1972) highlighted the need for more comprehensive actions [13] and resulted in a series of international efforts (e.g. United National Environmental Program, 1972; The International Environmental Educational Program, 1975; The World Conservation Strategy, 1980). In 1987, the United Nations World Commission on Environment and Development published the report 'Our Common Future', a milestone in the environmental revolution and the first publication that uses the term "sustainable development" [1].

In parallel with the emergence of sustainability thinking, the perspective of research initiatives broadened from simplistic emission-limiting measures to sophisticated life-cycle oriented solutions. End-of-pipe pollution treatment methods are substituted with ecological modernisation investments [14]. Governmental agencies, non-governmental organisations, industrial associations and individual companies introduced various standards and other voluntary codes complementing strict disincentives. Policymakers promoted these non-mandatory policies such as reporting of operational records and implementing best practices as an extension to the regulations [15]. Reactive measures are being transformed into proactive efforts that shift the industrial practices beyond compliance levels. As a consequence of the increasing adoption of such voluntary actions [16] the term, *voluntary overcompliance* is

coined for the business phenomenon where firms are performing beyond the mandatory compliance levels [17].

### 3. Sustainability and overcompliance

#### 3.1. Shared motives and goals

Sustainability refers to meeting the needs of current and future human generations without overburdening the nature. It aims at higher economic, environmental and social standards in different areas of human living [1] and requires shifts in organisational activities, structures and cultures in practice.

Traditionally the shifts towards higher standards are initiated through regulations, which suggest that improving economic efficiency and environmental impacts results in better social conditions. However, this approach may not ensure the prosperity and well-being of society in every case. The integration of economic, social and environmental aspects that go beyond those specified by regulations and standards is the core objective of voluntary measures leading towards sustainability. In other words, resource allocations that target achieving more sustainable practices can also lead to overcompliance with the existing regulations.

Resource allocations in a company that target achieving a higher level of sustainability go through complex decision-making processes. The decision-making environment of a company is a conglomeration of stakeholders within its social, political and economic domains [18–20]. It accommodates shared channels of dialogue, discussion and negotiation over social, financial, legal and political interests, beliefs, concerns and expectations [21]. The essential entities influencing the decisions through these channels are: 1) Exchange partners (e.g. customers, retailers, suppliers), 2) Sources of funding (e.g. financial institutions, shareholders, investors), 3) Regulatory bodies (e.g. state agencies, courts, international authorities), 4) Professional institutions (e.g. trade associations, academic institutions) and 5) Special interest groups (e.g. religious institutions, local communities).

Since an increasing part of the population is supporting the initiatives with good environmental performance and social responsibility [2,8], more and more companies screen their value-creation networks for potentials to improve their sustainability, thus to increase their competitiveness [22]. As a result, the guiding principles of overcompliance imply certain motives and goals in different practical contexts for improving sustainability (Table 1).

Various studies cover the company, industry or case specific characteristics underlying these motives and goals to govern the externalities such as regulatory pressure, competitive pressure and stakeholder pressure (Table 2). The most studied advantage of overcompliance in literature is its potential to reduce regulatory pressure. By voluntarily elevating their existing social and environmental profiles, companies mitigate the present and future risks attached to the regulations [23–26]. As one of the most important risks of non-compliance, negative market reactions such as boycotts, protests or other anti-company lobbying activities by consumer organisations are also prevented [6,15,27].

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