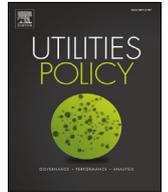


Contents lists available at [ScienceDirect](#)

## Utilities Policy

journal homepage: [www.elsevier.com/locate/jup](http://www.elsevier.com/locate/jup)

# Public utility companies in liberalized markets – The impact of management models on local and regional sustainability

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## ARTICLE INFO

## Article history:

Received 5 December 2016

Received in revised form

22 March 2017

Accepted 2 May 2017

Available online xxx

## Keywords:

Multi-utility companies

Liberalized utility markets

Economic autarky

Sustainability transitions

Public ownership

Mixed management models

## ABSTRACT

This article analyzes how publicly-owned utility companies can remain competitive in liberalized markets. We study EPM, a utility company from Medellín, Colombia. We discuss the company's management model, local laws and regulations affecting it, direct and indirect benefits for the city, and risks resulting from the power it has acquired. It is claimed that early decisions to maintain public ownership of key assets and provide the company with administrative autonomy helped it remain competitive, despite the liberalization of the market. This has allowed the city to increase its revenue and, as a result, its spending on social and environmental projects.

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## 1. Introduction

Although many of the problems arising from urbanization and the use of technology have been widely acknowledged, the central role that cities and their regions play in the search for sustainability transitions was not seriously considered until 1987, with the Brundtland report (Bulkeley and Betsill, 2005). Urban sustainability, however, is a controversial concept. It is controversial because of the relativity that comes along with it, i.e. how closely tied any definition might be to the particular context being analyzed, and inevitably biased towards a geographically-defined area (Hansson, 2010; Hult, 2013; McFarlane, 2006; Walker et al., 2015; Whiteman et al., 2011). In addition, the actors involved and the methods used to reach any sustainability goal play a particularly central role. What is seen today as the improvement of a city's sustainability performance was not necessarily the initial goal when projects or programs started to be thought about or implemented. Connecting the dots to develop models and understand the origin of improvements can thus become difficult under these conditions.

Moreover, even under different conditions, the predictability power of models based on past behavior has received stark criticism (see e.g. Geels, 2011; Smith et al., 2005). Forecasting socio-technical behavior is a complicated enterprise.

Bulkeley and Betsill (2005) claimed that the role of cities in reaching global sustainability is not clear in practice. However, urban technologies represent an opportunity to decrease the impact they have on the environment (see also Vojnovic, 2014). The benefits to cities and their inhabitants resulting from the implementation of technology are obvious to many. In fact, as Gandy (2005) discusses, technology is one of the main characteristics of modern urban settlements, and an important explanation of their attractiveness as a social arrangement. More than the availability of technology, it is the intensity of its use that strengthens the cities' attractiveness: it is not a surprise that so-called "global cities" are characterized by their intense use of technology (see e.g. Hodson and Marvin, 2010; Nastar, 2014; Vojnovic, 2014). As we will later discuss, utilities and the infrastructure required to provide them play a particularly central role. However, an exclusively techno-centered approach to sustainability can reduce the sustainability debate and the cities' role in it to discussions of an administrative nature (Bulkeley and Betsill, 2005; Hodson and Marvin, 2010; Mejía-Dugand, 2016; Neto, 2016). The role of local actors and their agency must be also considered in the models and

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frameworks directed at understanding sustainability transition processes (Gailing and Röhring, 2016; Mejía-Dugand, 2016; Smith et al., 2005).

McFarlane (2006) claims that categorizing cities according to their comparative level of development (i.e. economic, political or technological) might hinder the possibility of learning between and among contexts (see also Robinson (2011)). In this article, we analyze the case of *Empresas Públicas de Medellín* (hereon referred to as EPM), a utility company owned by the city of Medellín, Colombia, with the intention to provide an example outside the favored global circle, or what Hodson and Marvin (2009, 2010) call “ordinary cities,” with a focus on its management model, and its approach to sustainability and infrastructure transitions. It is clear that the public nature of EPM motivates to a great extent its social behaviors. However, as we will discuss throughout the article, these are also propelled by what Shah and Arjoon (2015) define as the main intrinsic needs for self-determination: *competence* (i.e., feeling effective in its ongoing interactions with the social environment), *autonomy* (i.e., perceiving itself as the origin of its own behavior), and *relatedness* (i.e., feeling connected to stakeholders).

The aim of this article is to discuss EPM's management model, and the impacts it has had on local and regional environmental and social sustainability. To support this aim, the following questions will be addressed:

- What values and management model has EPM adopted to address social, environmental, and normative challenges?
- What type of national/local regulations have influenced the company's operation, and how do they affect/support the company's capacity to impact the city's and the region's sustainability?

This case promises to contribute to the discussion on entrepreneurial cities looking to increase their citizens' well-being through municipally-owned corporations that are commercial and social at the same time. It also contributes to the debate about operational efficiency between the private and the public sectors, and the central role that utility providers play in the construction of more sustainable cities and regions. Whiteman et al. (2011) say that cities provide a new context for research in business management and organization studies. Throughout the article, we will argue that technology has played and continues to play a central role in the well-being of citizens, the generation of revenues to promote and support development, and the transition into more sustainable cities and regions. Ultimately, this case study can contribute with good practices from emerging economies, which face particular challenges sparsely addressed in the literature.

## 2. Cities and their socio-technical configurations

We have discussed in the introduction the central role that cities play in debates about global sustainability. Hodson and Marvin (2009, 2010) claim that some of the world's most powerful cities are undertaking initiatives to deliberately reconfigure their socio-technical regimes. It is not surprising that these cities attract attention due to the regional and global power they have, the influence they exert on other cities, their capacity to undertake large technological/infrastructural projects, and their spread use of urban technologies (Nastar, 2014; Taylor, 2005). However, these authors also recognize the importance of addressing transitions happening outside this group of cities (which McFarlane (2010) calls the “usual suspects”), and suggest including them as relevant cases for the study of sustainability transitions.

Mejía-Dugand et al. (2013:85) discuss the successful transition

of the transport sector in South American cities as “a matter of nonhierarchical connections, where each element (city) is affected/influenced and at the same time each element affects/influences any other element.” This claim supports the relevance of analyzing transitions that occur outside the favored circles of premium world cities. Even in a globalized world in which connections grow at an unprecedented pace, geographical, political, cultural and economic conditions might require a more flexible analysis, one that gives more importance to local conditions. These considerations are crucial, taking into account that dominant ideas of what a sustainable city is are to a great extent abstractions of values, norms and practices of dominant socio-technical models, i.e. North American, or Northern and Western European cities (Hult, 2013; McFarlane, 2010; Mejía-Dugand, 2016; Pierre, 2005). Strong local institutions can contribute as intermediaries to envision and coordinate transitions and influence the dominant regimes by protecting and embracing local values and common goals (Hodson and Marvin, 2009).

Analyzing the acceptance or rejection of technology at the societal level is a complicated enterprise, considering the vast number of groups and their interpretation of what a given technology means or the benefits it represents. New concepts must overcome the obduracy of existing structures and the distrust that actors feel when new concepts are introduced (Baas, 2005; McLoughlin et al., 2000; Mejía-Dugand, 2016; Mejía-Dugand et al., 2013). External actors encounter therefore strong resistance and find it difficult to transmit the benefits that in their view they will entail, and their technology might be inappropriate since technological change is a “localized learning by doing process” (Fu et al., 2011:1209). Local actors, vernacular knowledge, and indigenous ingenuity thus play a fundamental role in facilitating this process (Mejía-Dugand, 2016; Memon et al., 2006).

Söderholm and Wihlborg (2015) highlight in their study the active role of the central state in transition processes in Sweden through the coordination of stakeholders, values, knowledge and instruments. Hodson and Marvin (2009, 2010) focus more on the role of what they call intermediaries, or actors that are in charge of creating collective understandings of the local context. They also build social networks of actors who work in favor of the achievement of the collective vision while highlighting their importance in long-term and complex changes (see also Van Lente et al. (2003)). These intermediaries can be, as Hodson and Marvin (2009) state, public or private, governmental or non-governmental.

In this direction, it is crucial to understand the underlying social structures behind any intended transition. From a “macro” perspective, the degree of institutional support, the economic significance of any given decision, and the political legitimacy it entails are important issues to consider (Smith and Stirling, 2008). From a “meso” perspective, the role of the public sphere, its proximity to technology, and its awareness of or engagement with change are central (Walker and Cass, 2007). At the “micro” level, innovation support, and the “shielding, nurturing and empowerment” properties of protective spaces are to be considered (Smith and Raven, 2012). Although sometimes influenced by external groups or trends, societies form in an independent manner an image of what a problem represents for them, how they will deal with it, and what their goal is regarding the solution's scope (Bohman and Raitio, 2014; Hillman et al., 2011). With this in mind, it is important to consider who is defining the problem, who wins and who loses with any suggested solution, whose problems they are, and from which perspective they are being analyzed (Bohman and Raitio (2014), and Smith and Stirling (2008) presented a similar argument).

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