

**Dynamics of Innovation of Biofuel Ethanol.**  
**Three decades of experience in the U.S. and in Brazil**  
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This dissertation draws on the burgeoning field of innovation of low carbon technologies. Using the functions of innovation systems, this study explores the process of innovation of biofuel ethanol in the U.S. and in Brazil. It uses “process theory” to build a narrative of historical events that represent the innovation trajectory of ethanol biofuel in the U.S. and in Brazil over a period of thirty years. The data is drawn from newspaper articles from the New York Times, Washington Post, and O Estado de Sao Paulo published between 1975 and 2008. Results of this research confirm findings published previously that innovation performs better when the main actors in the innovation process act under clear and well defined policy targets, and when the innovation environment contributes to building positive expectations about the technology. The empirical findings build upon the literature and validate early claims that the alignment of goals between technology producers and users is an inducer of innovation. Moreover, the analysis presented shows that by developing new capabilities, technology users in the downstream market broaden the innovation environment and facilitate the adoption of the emerging technology by new users and markets. For example, the automobile sector has been participating actively in the ethanol technological innovation system in Brazil, facilitating the innovation flow between upstream and the downstream market. This has not been the case in the U.S., where the automobile sector has not found incentives to participate in the ethanol technological innovation system.