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New business models for biofuels

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Transport fuels like gasoline and diesel are typical commodity goods, having flexible prices and numerous traders. The commodity market is the archetypical competitive market, as it is built on the premise that each individual trader is negligible in size compared to the market as a whole and therefore, exerts no influence on the market price. In such an environment, consumption tends to correlate negatively with price, with fewer products typically being consumed when prices are high. For example, the oil crisis of 1970's prompted the automotive industry to design more fuel efficient vehicles. Conversely, supply is positively correlated with price, seeing more players entering the market when prices soar and the recent fracking revolution in the US being a case in point. It is notoriously difficult for new entrants to compete in commodity markets as demand is driven primarily by price and incumbent firms have established comfortable economies of scale. In order for a newcomer to avoid head-on competition, it is necessary to identify niche markets and disrupt them with innovative products that address the (latent) needs of said markets. To this end, a popular framework from innovation sciences, namely Blue Ocean strategy, is applied to the transport fuel market in this study. Two Blue Oceans, each representing a hitherto uncontested marked space, have been identified, with one inhabited by consumers who would buy fuel if only the price were lower, while the other comprises more upmarket consumers who are less sensitive to price. To serve these niche markets, both a low- and high-end disruptive biofuel, have been reversed engineered, respectively. Both are based on aromatic oxygenates, compounds which can be produced from lignocellulosic biomass and have been found to perform well in both compression- and spark-ignition engines.

Biography

Michael Boot has received his MSc and PhD degrees from the Department of Mechanical Engineering at Eindhoven University of Technology in 2005 and 2010, respectively. In 2009, he co-founded Progression-Industry BV to commercialize various automotive technologies in the domains of Waste Energy Recovery and Biofuels. In 2016, he was appointed as a Fellow at the Eindhoven University of Technology in the field of Designer Fuels.

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