Standards Competition: A System Dynamics Simulation Modeling Approach

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**Abstract**

*Standardization literature focuses on both committee-based standardization (*[*R. Bekkers, Bongard, & Nuvolari, 2011*](#_ENREF_1)*;* [*De Vries, 1999*](#_ENREF_3)*;* [*G. Van de Kaa & De Bruijn, 2015*](#_ENREF_12)*) and market-based standardization (*[*Rudi Bekkers, Duysters, & Verspagen, 2002*](#_ENREF_2)*;* [*Den Hartigh, Ortt, Van de Kaa, & Stolwijk, 2016*](#_ENREF_4)*;* [*Gallagher, 2012*](#_ENREF_5)*;* [*Gallagher & Park, 2002*](#_ENREF_6)*;* [*Hill, 1997*](#_ENREF_7)*;* [*Suarez, 2004*](#_ENREF_10)*;* [*G. Van de Kaa, De Vries, & Rezaei, 2014*](#_ENREF_13)*;* [*G. Van de Kaa, Fens, & Rezaei, 2019*](#_ENREF_15)*;* [*G. Van de Kaa, Janssen, & Rezaei, 2018*](#_ENREF_16)*;* [*Geerten Van de Kaa, Scholten, Rezaei, & Milchram, 2017*](#_ENREF_17)*). This paper focuses on the latter and develops a simulation model of standard competition dynamics drawing on existing theory and four published cases (*[*Gallagher, 2012*](#_ENREF_5)*;* [*Gallagher & Park, 2002*](#_ENREF_6)*;* [*M. A. Schilling, 1999*](#_ENREF_8)*;* [*M.A. Schilling, 2003*](#_ENREF_9)*;* [*G. Van de Kaa, 2009*](#_ENREF_11)*;* [*G. Van de Kaa, De Vries, Van Heck, & Van den Ende, 2007*](#_ENREF_14)*). The model represents the interplay of strategy levers that firms can use to gain an advantage in standard competition. Results agree with the published cases and show that the competition outcome arises from the systemic effect of all the factors identified in the original studies. The model also provides the opportunity of running “what if” simulations to explore whether competition outcomes could have been different and standards could keep their First Mover Advantage, or reverse that of their competitors. The paper contributes to the literature on market-based standardization by providing a basis for further theoretical and empirical work on strategic aspects of standard competition in the respective industries of the cases.*

***Keywords****: standards, competition, FMA, system dynamics, retroduction*

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