

Mediated Modeling of National Innovation Systems

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Abstract: National Innovation System (NIS) is the term used by scholars and policy makers to describe the emerging scientific and technological structures and processes of a nation that influence economic and social development. The last decade has seen a growing research interest in the innovation systems of different economies in order to better understand the factors that determine their economic and social development. The aim of this workshop is to conduct a mediated modeling exercise where attendees will have the opportunity to interact with a System Dynamics model of a NIS based on data collected by an on-going multinational research project. As a result, attendees will gain a broader comprehension about innovation-driven policy interventions and their impact on a country's NIS.

Nature of the meeting

The purpose of this workshop is to conduct a mediated modeling exercise which will produce as a result a broader comprehension from the attendees in relation to innovation-driven policy interventions and their impact on National Innovation Systems (NIS). A NIS is defined as the set of actors in a country (firms, universities, research institutions, funding agencies, etc.) which are responsible for translating or converting basic and applied research results into technology and products, bringing with it social and economic welfare.

The importance of a NIS for a country lies on whether our knowledge production through public-private partnerships increases economic and social development. The US, UK and Germany are examples of nations concerned with the importance of their NIS to the point where many scholars sustain that their high levels of development and competitiveness are mainly driven by their policy efforts in improving their NIS.

However, as many complex systems, due to the presence of a large number of actors in the NIS, policies which were meant to increase its performance often produce the opposite, unintended effect. Initiatives from the private sector as well as government policies for promoting public-private partnerships and even scholarly publications and patents from universities depend on how the other actors will behave in the dynamic

environment and on how this will affect their own. In addition, the strong path-dependency patterns seen on these systems along with time delays can sometimes lead to a delay of several decades before their benefits become tangible.

Presently, efforts in understanding, explaining and specially in managing NIS have focused on either statistical and econometric approaches or expert-based opinions. Since Innovation Systems are inherently complex, these methods only partially account for the explanation of NIS behavior and, consequently, how they should be managed.

This workshop is grounded on the preliminary results of an ongoing multinational project which aims at developing a SD-based toolkit for the study of NIS. In our proposed modeling exercise, we will use a preliminary SD model built by researchers from Duke University (US), UFSC (Brazil) and the National University of Kaohsiung (Taiwan).