

## **MAN\_07 - Use of soft modeling based on system dynamics for evaluation of partnerships for productive development focusing on technology transfer pharmaceutical industry**

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**Introduction:** It is known that health, as a public policy, is one of the main variables to be taken into account for the development of a country, both economically and socially. However, managing this variable is very complex, especially in a country that presents other challenges, such as Brazil. This work presents the elaboration of a soft model based on system dynamics that allowed the creation of a causal loop diagram for the evaluation of partnerships for productive development in the Brazilian pharmaceutical industry.

**Objective:** The main objective of this work is to identify the main variables that make up the process of a Productive Development Partnership, focusing on technology transfer in the pharmaceutical industry, seeking to analyze with the aid of causal loop diagram, based on in the soft modeling of system dynamics.

**Methodology:** The following sequential logic was applied to perform the soft modeling using the Vensim software:

- Identification of the problem
- Identification of relevant variables and their respective extensions;
- Definition of the cause and effect relationship between the variables;
- Mapping the system structure;
- Identification of cause and effect circles;
- Assess the consequences of feedback circles;
- Define qualitative conclusions to decision making suggestion

**Results:** As a result, 27 variables of interest were selected and different extensions were identified that belonged to the variables. They are: politics, environment, health, technology, social and economics. Eight feedback cycles were identified, five of reinforcement and three of equilibrium, which allowed the evaluation of the behavior of the dynamics of a technology transfer and allowed suggestions for decision making that aim to strengthen the supply of the SUS.

**Conclusion:** It's concluded that the management of a partnerships for productive development for technology transfer is quite complex, involving political, economic, technological, social, environmental and health areas. This system is directly affects the promotion of health for the population through the supply of the SUS. The modeling performed allows to assist in decision making in different extensions to favor reinforcing feedback loops and reduce the potential of equilibrium feedback.

**Keywords:** Partnerships for productive; Technology transfer; System dynamics