

MBA 615 : System Dynamics

System dynamics is a modeling process to quantify problems that unfold through time in mathematical models that are simulated to investigate sources of undesirable dynamics and find successful improvement strategies. System dynamics embodies an iterative process in which a problem that is pervasive throughout a system is defined, the structure of the system that generates the problem will be studied, and policies or practices that can change the system structure and behavior and therefore alleviate/solve the problem will be reviewed and introduced.

The understanding of the system structure requires the determination of how critical variables affect other variables, even if the other variables are downstream from the critical variables under consideration. To determine variable interrelationships, not only must the analyst establish the causal relationships among the elements of the system but also distinguish those among the physical, organizational, and decision-making relationships.

In this course, you will consider problems that manifest themselves in complex systems. Examples of these include but are not limited to: the performance degradation associated with the introduction of new technologies in organizations, the tragedy of the commons and other market failures that lead to rationales for government intervention; fluctuating sales, production and earnings; the diffusion of new technologies; and environmental challenges, and epidemics. You will use one of several simulation software packages throughout the course to understand, evaluate, and improve upon complex problems and establish a relationship between the real world and a virtual simulation world by generating and evaluating corresponding system simulation models.