Developing a Systems Dynamics Model for Security Management

Authors : Kuan-Chou Chen

Abstract : This paper will demonstrate a simulation model of an information security system by using the systems dynamic approach. The relationships in the system model are designed to be simple and functional and do not necessarily represent any particular information security environments. The purpose of the paper aims to develop a generic system dynamic information security system model with implications on information security research. The interrelated and interdependent relationships of five primary sectors in the system dynamic model will be presented in this paper. The integrated information security systems model will include (1) information security characteristics, (2) users, (3) technology, (4) business functions, and (5) policy and management. Environments, attacks, government and social culture will be defined as the external sector. The interactions within each of these sectors will be depicted by system loop map as well. The proposed system dynamic model will not only provide a conceptual framework for information security analysts and designers but also allow information security managers to remove the incongruity between the management of risk incidents and the management of knowledge and further support information security managers and decision makers the foundation for managerial actions and policy decisions.

Keywords : system thinking, information security systems, security management, simulation
Conference Title : ICITSM 2016 : International Conference on Information Technology, Systems and Management
Conference Location : Berlin, Germany
Conference Dates : May 19-20, 2016