Attacking and Defending Perspective of E-Crime Behavior and Psychology: A Systemic Dynamic Simulation Approach

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Abstract

Cybercrime is a worsening problem that can lead to loss of financial and personal information. However, ecrime is particular hard to detect since internet is boundless that make evidence hard to collect. Additionally, compare to others crime issues, e-crime is an emerging crime type thus previous crime theories should be refined and new methods of predicting e-crime should be further developed. In this research, we constructed a system dynamic simulation model from both e-crime attacking and defending side respectively. Various decision variables that related to behavior and psychology perspectives of victim and offender were added to proposed model. Furthermore, the actual ecrime data of Taiwan from Year 2000 to 2008 for cyber fraud (CF) and offend computer usage (OCU) are then further verified the proposed model. As the simulation result demonstrated, the accuracy rate of e-crime predication can be achieved about 80%. Additionally, some interest parameters are also revealed, such as the recidivism rate and report rate of victim were unknown in previous research. Finally, via inference of simulation result, some suggestions are also proposed to reduce potential e-crime behavior.

Keyword：Cybercrime; Systemic Dynamic Simulation; E-crime prediction