

## **Economic Background**

The history of computer simulation began during World War II while John von Neumann and Stanislaw Ulam investigated neutron behavior [1]. Random trial experimentation was too expensive, and theory was too complex to produce a closed-form analysis. As the basic equations and data about the occurrence of events in a sequence were known, the probabilities of separate events could be merged stepwise to predict the outcome of a sequence of events. Following von Neumann's and Ulam's remarkable success in simulation of neutron behavior, the technique of computer simulation soon became popular and found many applications in the business and industry [1].

Therefore, computer simulation of a physical process is useful when (a) it is too expensive to run the physical process repeatedly varying input parameters, and (b) a closed-form analytical result is not achievable due to theoretical complexity or intractability.

[1] <http://www.uh.edu/~lcr3600/simulation/historical.html> (accessed 25 Feb 2013).