Simulating network effects of New Economy goods

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ABSTRACT

The so-called New Economy is said to be driven by economies of networks instead of economies of scale. The term "economies of networks" is derived from a characteristic of many goods in the information and communications sector: they show a positive correlation between their utility and the number of customers. This phenomenon is called network effect, network externalities or demand-side economies of scale.

In recent years, trends towards an information society have emphasized the importance of such goods satisfying information and communication needs. Network externalities are present when the number of consumers who purchase a particular good is an important characteristic of that good, which affects the utility derived by consumers either directly or indirectly. Examples of goods showing network externalities are fax machines, e-mail, or computer platforms.

In system dynamics terms one can speak of a positive feedback: the more customers use a product, the more likely others will be attracted to its use, and so forth. Many implications have been derived from this basic structure, for example the need to grow faster than the competition with the consequence of accumulating high losses during the growth period. Also, concepts like compatibility and switching costs of customers locked-in in one network have become important.

The paper examines in which way the diffusion of goods showing network effects differs from "conventional" products. Growth strategies are compared to cost leadership strategies based on economies of scale. Limitations of networks are investigated. Also, the competition and cooperation between two networks is further explored. After this simulation-based analysis, conclusions concerning successful strategies for managing network externalities are derived from the system dynamics model.