

# Application of Network Sciences to Society and Economy

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## Abstract

Society progresses by the evolution of consciousness and organization. The entire process of social development and civilization from early times can best be understood as the progressive growth of the number, type and complexity of interactions and relationships between people, places, activities, and ideas. Moore's law for the micro-processor is a subset and technological expression of a principle that has been operative in society since before the invention of agriculture. Networks govern the operation of society at multiple levels and scales in Space and Time. They determine the movement and exchange of material things, interactions between individuals and groups, interrelationships between activities, systematic linkages between organizations, collection and dissemination of information, accumulation and organization of knowledge, and exchange and development of ideas. The exponential growth in the power and productivity of modern society is an expression of the laws of network science. Language, money and Internet are three forms of social organization that exemplify the view of society as an increasingly complex and integrated network. The number of nodes, standardization, speed, bandwidth, and complexity of interactions are essential parameters of social networks. An application of network principles to the multiplication of money will undermine 19th century conventional thinking about limits to growth and limits to prosperity. A shift in emphasis from dealing with money as a scarce and limited resource to viewing it as an expanding social organization will reveal fresh strategies for overcoming the present global financial and economic crisis. The concept of integration which is so critical to the power of networks is the key to unlimited expansion of social productivity and human welfare.