



Characterizing High-tech Supply Chains in the Pacific Northwest

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Background

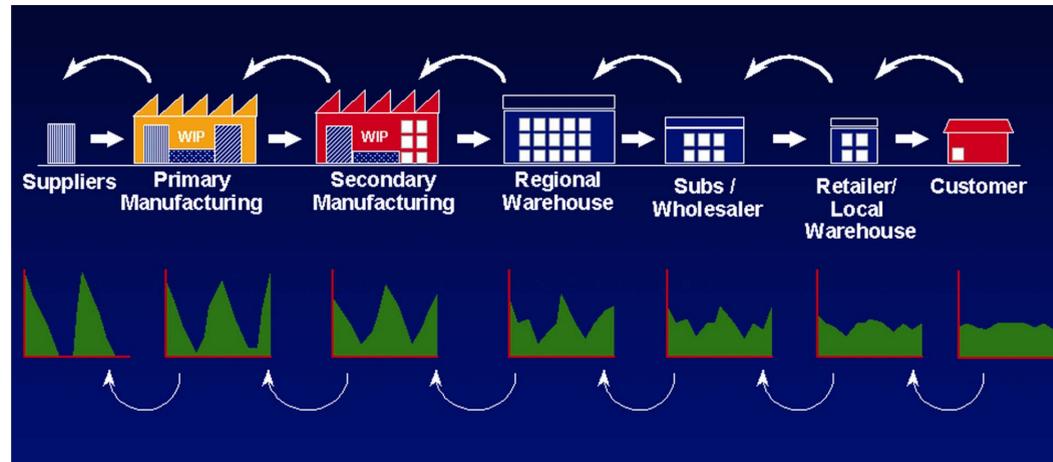
The NISAC Agent-based Laboratory for Economics (N-ABLE) employs agent-based, complex adaptive models of economic sectors, markets, and infrastructure networks to examine micro and macroeconomic consequences of infrastructure disruptions and policies.

The overall modeling effort should contribute to the nation's ability to prepare for possible attacks on critical infrastructure such as electric power, telecommunications, and transportation, and improve the effectiveness and efficiency of responses should such attacks occur.



The Approach

The Global Trade, Transportation and Logistics Program effort for the N-ABLE project is to characterize manufacturing and transportation behavior within high-tech supply chains in the Pacific Northwest. This includes case studies of Northwest electronics firms and their supply chains, analysis of databases, interviews with selected companies, a review of inventory and supply-chain literature, and development of pilot simulation models.



The case studies help to establish a general structure for high-tech supply chains. Drawing from the literature, an ordering system linking manufacturing, distribution and transportation within supply chains is developed to incorporate bullwhip effects, queuing delays, and expediting. The model embodies stationary and disrupted states. Analysis of databases covering high-tech economic sectors and findings from sample company interviews provide the means to calibrate parameters of the ordering system. Pilot simulation modeling assists in validating the performance of the agent-based model.

The GTTL Program

Education in supply-chain management, product logistics, transportation, electronic commerce, intermodalism, infrastructure improvement, partnerships and strategic alliances is essential to understanding the emerging global economy. The GTTL Interdisciplinary Program at the University of Washington addresses this need by training students in methods of today's global commerce.

To provide instruction, GTTL draws upon the expertise of faculty from 16 departments and colleges who work together with experts from business and government. The GTTL model creates a "virtual department" within the University by networking various faculty and students. In addition to a Masters Degree from their home college, the students receive a GTTL Certificate.

