

Working Title	Improved New Product Forecasting through Visualization of Spatial Diffusion
Key Research Question / Hypothesis	Develop a new system to integrate logistics and supply chain management with various aspects of marketing science. The research question involves developing innovative methods for new product forecasting in the consumer goods and other industries.
Team Profile	1 – 4 MLog students
Project Description	<p>Forecasting demand for a new product is a particularly difficult task. Part of the reason that new product forecasting is such a challenging problem involves the way consumers adopt a product within a defined space. Early studies have noted customer adoption is not spatially uniform. Clusters of adopters tend to form and grow or contract with time. This research deals with the spatial diffusion process in the context of introducing new products and services into markets. Advances in technology including visualization, along with innovative digital mapping technology and new ways of interoperating mathematical models give improved ways to track spatial diffusion resulting in better forecasting and supply chain coordination.</p> <p>The research utilizes the M Language and Dictionary under development at the MIT Data Center to integrate models and data along with mapping technology initially developed in civil engineering and geodetic science.</p> <p>The goal is to build a real time system to monitor spatial diffusion for a consumer goods and to integrate models needed for decision-making in such areas as amount of advertising and logistical control (inventory levels, customer service, and cost).</p> <p>An introductory article that summarizes this research can be found at:</p> <p>http://mitdatacenter.org/MIT-DATACENTER-WH-006.pdf</p> <p>An Industrial program on this subject will be held on December 7, 2005.</p>
Data Type & Sources	Consumer goods data including location. Some data obtained from Internet sales.
Potential Advisor	Edmund W. Schuster, Stuart J. Allen, and David L. Brock
Company Contact	Several companies are interested in this area. We will determine the companies based on student interest. Lillian Vernon has already provided related data for seasonal items.
Primary Methodology	<p>This project will include the following methodologies:</p> <ul style="list-style-type: none"> • Modeling (several types of spatial diffusion models integrated with logistics and supply chain models). • Some field work in gathering data. • Conceptualizing (designing the information system architecture to implement an operational system for improving new product forecasting in practice).
Is	<ul style="list-style-type: none"> • Innovative thinking • Some mathematical modeling • Integration at the interface between marketing and logistics/supply chain management
Is Not	<ul style="list-style-type: none"> • An overview of marketing and logistics/supply chain management

