Management Systems

Analytical Tools for Management Excellence

Government agencies and other organizations hire the Management Systems team at EconSys to address their research and consulting needs in a timely, professional, and highly skilled manner. We focus on developing a thorough understanding of the client's needs, starting with the initial project parameters and establishing a close working relationship with the client throughout project implementation. Our strength and our success in project execution arises from our command of a broad range of techniques from econometrics, management science, operations research, statistics, finance and other disciplines. Having several tools at our disposal allows us to customize our approach in order to match client needs.

Past Projects

- Conducted analysis of customer loyalty and profitability for Bank of America.
- Conducted Congressionally mandated studies of VA's insurance, pension, and loan programs.
- Developed a decision support system for the VA to evaluate and prioritize major capital investment proposals that can be found on their Web site.
- Develop and maintain budget forecasting models for the Federal government's student loan program.
- Analyze factors affecting decreasing participation in defined benefit retirement plans for the Department of Labor.
- A customer satisfaction survey analysis for the First USA Bank using causal path modeling.
- Statistical and sampling advice to CVS on the subject of Medicare and Medicaid overpayments.
- Development of workflow simulation models of Hartford Insurance's service centers.
- Predictive modeling for Hartford Insurance's marketing campaigns for small businesses.
- Development of an input-output model of the economy of the Commonwealth of Northern Mariana Islands, the results of which were presented to the U.S. Congress in their deliberations of labor and immigration policies for this Commonwealth.

- Development and application of a "report card" approach for measuring performance of different branches performing similar operations, applying a particular operations research technique called Data Envelopment Analysis, which is linear programming based. Clients have included Charles Schwab, Citibank, the IRS, JCPenney, and Harris Teeter Grocery Stores. Our work in this area was featured in a Fortune Magazine article," Which Offices or Stores Really Perform Best? A New Tool Tells," October 31, 1994.

Program Evaluation

Our team assesses the effectiveness and efficiency of programs sponsored by government agencies at federal, state, and local levels. Our evaluations encompass analysis of statutes and regulations, program outcomes and measures, and relationships to other programs, and culminate in action items that could improve the program.

Our methodology includes: interviewing stakeholders; reviewing extensive literature; analyzing administrative records as well as external data; conducting a national survey of program participants and (if needed) program non-participants.

Our program evaluation studies accomplish or support several objectives:

1. Measure the impact of products or services on customers or clients.
2. Increase efficiency (and decrease cost) by improving delivery mechanisms.
3. Verify what the program is doing and what you think the program is doing.
4. Verify or develop program goals; then determine whether it meets its goals and develop program measures which will assist in knowing if it has met its goals or not.
5. Produce valid comparisons between your program and other programs.

EconSys professional staff members have a broad knowledge of and experience with applying advanced survey methodologies in program evaluation studies, including instrument design, sampling, data collection, analysis of large databases, and the preparation of high quality research and policy reports. Our extensive survey management experience allows us to carry out large and complex survey and program evaluation data collection efforts in efficient and cost-effective ways. Our survey research experience includes telephone, in-

person, mail surveys, mixed mode surveys, and more recently the design and administration of web-based surveys.

Statistical Modeling

EconSys analysts are trained in many types of research designs. In analyzing data, our employees utilize the most advanced statistical and mathematical applications, including time-series forecasting, generalized least square econometrics, logit and probit categorical dependent variable analysis, survival modeling, causal path modeling, and analytic hierarchy process. In addition, we have developed many in-house computer programming routines for tackling various specialized research topics. Data mining programming and tools search data warehouses for finding solutions that are then implemented in real-world situations. Some of the data-mining methodologies employed by our firm include neural network programming, cluster analysis, decision tree techniques of CHAID and CART, cluster analysis, and discriminant analysis.

Simulation Modeling

Faced with increasing pressure to minimize your product and process development time? Whether you need to design a new process for your new business or reengineer for an existing one you need an effective tool. The answer may be the application of the workflow simulation modeling technique.

Simulation modeling, commonly referred to as simulation, is defined as the process of designing a model of a real system and conducting experiments with this model for the purpose of understanding the behavior of the system and/or evaluating various strategies for the operation of the system. It is a technique that helps to visualize, analyze, and predict the performance of a dynamic system without the cost and risk of disrupting existing operations, or implementing a new system.

Multiple Site Performance Evaluation

If your organization has a network of branches, you want to know which branches are performing better than others. We can assist you in evaluating the performance of your operating branches with our Crosspoint Evaluator using the data envelopment analysis (DEA) technique. The objective of the analysis may be any of the following: optimize the number and location of sites on the basis of certain market indicators; identify on-site management techniques that make a difference; identify strategies for improving market position relative to the

competition; identify weak points in the channel of communication, accountability, and authority from headquarters to the branch sites.

Crosspoint has several advantages that make it an excellent tool for performance measurement of branch operations:

- It can handle multiple input and multiple output models.
- Branches are directly compared against a peer or combination of peers.
- It takes account of all the measurable factors in branch performance—inputs and outputs as well as differences in technology, capacity, competition, and demographics—and then compares each branch with a composite peer group of other branches with similar attributes.

Customer Profiling

- Which customers are principal generators of profit?
- How does a firm retain profitable customers?
- What is the impact of customer satisfaction on profitability?
- What are the drivers of customer satisfaction?
- What are the drivers of customer purchasing behavior?
- And many more…

Below are some of the types of analyses that we can perform for your organization.

Customer Satisfaction

A customer satisfaction measurement program is an ongoing survey of customers for the purpose of obtaining continuous estimates of satisfaction. The information extracted from this type of survey can benefit your organization in many ways. For example, the results can assist in strategic and operational planning to improve performance in areas that are the drivers of customer satisfaction. Also, we can help you analyze the relationship between customer satisfaction and customer value and make appropriate recommendations to boost your firm's profitability.

Customer Loyalty

The financial benefits of repeat patronage can be huge. Reichheld and Sasser ("Zero Defections: Quality Comers to Services," *Harvard Business Review*, 1990) noted that repeat customers are less price sensitive and spend more than first-time customers and buy more per transaction. Advertising and operating costs are reduced by having repeat customers. It costs up to five times to win a new customer than to keep an old one. It is also noted that repeat customers are more likely to recommend a product or service to others.

We apply the most sophisticated modeling techniques to analyze the drivers of customer loyalty and to formulate appropriate strategies that help our clients achieve optimal retention levels.

Customer Valuation

Customer valuation is the measurement of customer lifetime profitability at the individual level and aggregated for different customer groupings. Lifetime value is a projection of the annual stream of profits from the current time period through the expected remaining tenure of the customer. Statistical analysis is applied to estimate the probable remaining tenure of a customer given the current tenure, age of the customer, and other factors.

Customer valuation analysis has many applications. Here are some examples:

- **Measure return on investment.** It allows us to measure the financial return on marketing versus other investments (e.g., customer service).
- **Increase profitability.** By identifying the drivers of customer value we can recommend appropriate strategies to boost your firm's profitability.

Relocation Analysis

Is your company in the right location? Could you benefit by moving to another city? EconSys has the expertise and modeling tools to find out where your company should be located. Our qualified staff has assisted many organizations in their decision-making process in finding the optimal location.

EconSys utilizes a comprehensive methodology for relocation analysis:

- Strategic assessment - Determine the business objectives that are to be serviced by the move, the groups to be moved, and possible move scenarios.
- Data collection and analysis - Collect information on each of the alternatives to be analyzed: labor, real estate and moving costs; analyze productivity impacts through the use of operations research methods; conduct a complete cost-benefit analysis.
- Decision-making - Evaluate relocation options with respect to business objectives using techniques such as the Analytic Hierarchy Process to evaluate non-financial criteria such as business impacts, quality of life, and employee retention as well as traditional cost-benefit tools to analyze financial impact.

Healthcare Management

The EconSys team does not approach healthcare clients with pre-selected techniques or "solutions to problems," but instead offers to address the concerns of each client as a new and unique project. In dealing with rapidly changing

environments, we believe that a more powerful approach is to understand a client's situation very well and then expertly apply the principles of the fundamental disciplines including economics, management science, operations research, statistics, and finance.

EconsSys' Healthcare Consulting Team focuses on assisting healthcare leaders in their strategic decision-making, planning and management analyses, and organizational management.

Some of our specific areas of expertise include:

- Business planning & decision support
- Market analysis & forecasting
- Human resource analysis & planning
- Revenue cycle management
- Capital asset planning
- Performance assessment & measurement
- Workflow optimization
- Cost-Effectiveness Studies
- Health information technology