



## Evaluation and Impact Analysis Capabilities

### *Understanding and communicating impacts*

**E**valuation and impact assessment is an integral part of the planning and decision-making process. Such analyses are critical at the design stage to inform the development of interventions that will create the most value from scarce public resources. This type of analysis is also critical in subsequent stages for revisiting program goals and approaches, and ensuring top performance relative to competitors.

SRI's Center for Science, Technology and Economic Development (CSTED) provides objective evaluation, analysis, and practical recommendations on policies and programs, assisting governments in making sound policy choices. Our staff has developed sophisticated, cutting edge tools for carrying out such analyses, and has conducted numerous such studies at all geographic levels. Many of these analyses have been based on economic models especially crafted for clients.

- **Program Evaluation.** SRI conducts program evaluations in the education, science and technology development, and economic development areas. SRI has a long history of working with public and private sector clients to develop strategies for enhancing the economic competitiveness, during which we have been at the forefront of new approaches to evaluation, economic analysis, strategy development, and public-private collaboration. Staff has years of expertise designing survey research methodologies, developing benchmarks, selecting samples, identifying indicators, designing scoring and weighting systems, conducting interviews and focus groups, tabulating and analyzing results, and providing focused findings and recommendations. The practice is frequently asked to apply its broad experience to evaluate economic development systems in place in regions throughout the world.
- **Impact Assessment.** Economic impact analyses inform stakeholders of the potential or realized benefits and costs of projects, programs, or policies to the wider community. Often, such assessments are undertaken to inform public investment decisions. SRI has conducted economic impact studies at the microeconomic (project) level, the sectoral level, the macroeconomic level, and the international economic level.



Our economists are intimately familiar with state of the art economic modeling and analytical tools and the quality and breadth of data sources. All of the CSTED's Economics Practice staff members have advanced degrees in economic analysis.

### **SRI International**

SRI International is one of the world's largest and most respected research and consulting organizations. Founded in 1946 as the Stanford Research Institute, SRI is an independent, nonprofit corporation serving business and government clients worldwide. The Institute boasts a staff of 1,400 professionals located in a worldwide network of offices. SRI International is a problem-solving organization that provides a broad spectrum of basic and applied research and consulting services to business and government clients throughout the world. The Institute was organized under the auspices of Stanford University to provide a West Coast center where research and consulting services could be performed for industry and the public sector. SRI formally separated from Stanford in 1970, but retained its nonprofit status. Further general information on SRI is available at the website: [www.sri.com](http://www.sri.com).

SRI is known worldwide for its scientific and business contributions, such as invention of the computer "mouse" and computer interface, development of electronic checking and clearing, innovative new market identification techniques, site selection for Disneyland, and creation of numerous anti-cancer drugs. Nearly two-thirds of our staff members have professional and technical expertise, including management consultants, economists, marketing consultants and researchers, computer scientists, psychologists, scientists, engineers, and other specialists. We are unique in our ability to draw from a variety of technical, marketing, and management groups to establish interdisciplinary consulting teams tailored to meet our clients' needs. SRI's clients include foundations, public/private partnerships, private corporations, associations, donor organizations and agencies of local, state, and federal governments.

Each year, SRI serves more than 2,000 clients around the world. At any given time, approximately 1,000 research and consulting projects may be under way. More than 75 percent of SRI's business comes from repeat clients. What sets SRI apart from most research and consulting organizations is our ability to harness a diversity of expertise to meet the needs of each project.

### **Center for Science, Technology and Economic Development (CSTED)**

SRI's Center for Science, Technology and Economic Development integrates two distinct disciplines—economic development strategy and science and technology policy. We have discovered that the effective combination of these factors serves as the key driver of long-term economic growth.

#### ***The Economics Practice***

The Economics Practice is the professional resource within SRI charged with providing top quality research, analysis, and strategic planning on economic development issues. The reputation of the Economics Practice is built upon years of experience providing comprehensive, individually tailored assessments of economic and workforce competitiveness issues. The Economics Practice staff have conducted in-country assignments in over 60 states and regions in the United States, and 115 countries throughout the world, acquiring recognition as respected authorities on policy concerns, as sought-after sources of objective analysis, and as "consultants of choice" for developing concrete solutions to a wide range of complex economic problems. These assignments have allowed us to develop a strong database on economic, political and business conditions. In recent years, Economics Practice clients have included, among others, many U.S. local and state governments, public/private partnerships, national governments, international banks and insurance companies, travel and entertainment companies, multinational business and manufacturing corporations, multilateral financial institutions such as the World Bank and the Asian Development Bank, and U.S. government agencies.

#### ***Science and Technology Policy Program***

Since 1980, SRI's Science and Technology Policy Program has provided decision makers with interdisciplinary research and analysis of major national and international scientific and technological issues. Commissioned studies are designed to produce a range of future policy options together with objective evaluations of past policies and programs. Areas of research have included assessments and analyses of national and regional S&T policies, programs, research systems, and capabilities, both in public and private sectors; assessments of state technology programs; and surveys of U.S. scientists and engineers involved in S&T programs. The Center uses a multidimensional research approach, integrating the analysis of S&T policy formation, R&D infrastructure, resources and outputs, together with evaluation by technical experts in the field under consideration. STPP staff members

have considerable experience in metrics of technology transfer, technology commercialization, and technical assistance.

### **What Distinguishes Us from Other Consulting Firms**

**Reputation and Objectivity.** SRI has developed a strong reputation as the "consultant of choice" on business and economic issues. This reputation for objective, in-depth analysis has given SRI a high degree of credibility among government leaders and business executives.

**Extensive National and Global Experience.** Having worked with business and government leaders throughout the United States and in over a hundred countries throughout the world, we have broad experience and databases on international best practices.

**Versatility.** The wide range of skills available in SRI's CSTED, supplemented by SRI's industry, engineering, and technical experts, allow us to assemble the optimal team of professional talent to solve complex, multidisciplinary problems for business and government clients.

**Depth.** SRI has acquired recognition as respected authorities on economic policies, and as sought-after sources of objective analysis on economic development, investment site selection and risk analysis, policy assessments, market studies and industry/sector growth strategies.

**Extensive Contacts.** Our established reputation and extensive contacts in government circles and multilateral agencies provide us with inside track to the latest policy and economic developments, and access to the most up-to-date information.

### **Relevant Project Experience**

Clients have engaged CSTED to carry out projects around the world in a wide variety of evaluation and impact assessment areas. (See figures below.) If there is one common thread throughout these projects, it is that we are often called upon when the issues being addressed resist traditional classifications and require innovative approaches. CSTED's broad experience and interdisciplinary and pragmatic approach to issues melds perfectly with such projects.

#### ***Program and Policy Evaluation***

##### **Economic Development**

***Kentucky Policy Framework for Entrepreneurial Development.*** In this project sponsored by the Kentucky Science and Technology Corporation, SRI conducted an audit of the state's policy framework for encouraging entrepreneurial development. SRI identified barriers that impede the commercialization of technology and the start-up and growth of innovative Kentucky companies. Following the SRI project work, the state government made a number of changes to encourage seed capital, stimulate new starts, and commercialize new technologies.

***Review of the Traditional Industries Program of the State of Georgia.*** SRI conducted an evaluation of the Georgia Traditional Industries Program (TIP) at the request of the Georgia Office of Planning and Budget. TIP brings industry leaders and university-based researchers together to develop and implement research-based solutions to problems critical to the competitiveness of Georgia's traditional industries. SRI conducted interviews, analyzed publicly available data, and conducted two surveys, one of TIP researchers and one of industry participants, to develop the data and information that were used in developing our conclusions.

***Regional Cluster Development Assessments.*** SRI has conducted numerous cluster development-type assessments throughout the United States and the rest of the world. While these engagements typically go beyond a pure policy assessment, a critical element of nearly all CSTED cluster projects has been an evaluation of the policy environment as it affects the competitiveness of firms in the clusters of interest. Such cluster development projects have been undertaken for states such as Illinois, Georgia, Iowa, Michigan, and Florida, and regions/communities such as Palm Beach, Florida; San Francisco; Austin, TX; and Philadelphia, PA

***Next Michigan Benchmarks: Measuring Michigan's Competitiveness.*** A team of economists from SRI International recently assisted the Michigan Economic Development Corporation to benchmark the state against its competitive peers. The study covered more than 150 indicators that benchmark Michigan in seven categories: human investment, financial resources, innovation resources, infrastructure, business costs, globalization and business vitality, and quality of life. This study was designed to provide a solid foundation for developing a public-private collaborative strategy to position Michigan for a takeoff in innovative, technology-driven growth. The benchmarking results were presented at the Michigan Competitiveness Conference in May 2002, and assisted in developing a consensus in the public and private sectors for the next round of competitiveness enhancement efforts in Michigan.

***Roles of Technology Parks, Research Centers, and Incubators in Economic Development.*** For an agency of the Italian Government, SRI researched the use of technology parks, research centers, and incubators by regional and national governments in North America, Japan, and Europe. Based on case studies from each region, SRI identified a set of success factors that explain why some technology parks and related facilities and activities are successful in starting, attracting, and supporting technology-based companies, while other initiatives have been costly failures. The results of the study have been applied in several other SRI studies, and have been used in designing new parks and centers in northern Italy.

***Namibia Scenario Planning.*** SRI International carried out a scenario development exercise to assist in the evaluation of ongoing USAID economic development activities and to inform the strategic planning process for ongoing development assistance. For this exercise, SRI conducted research on the current situation, trends, and high impact variables shaping the economic, political, social, regional, and environmental dimensions of the country. A "most likely" scenario for Namibia was developed, as well as a range of alternative scenarios. These scenarios were presented to government, private sector and NGO stakeholders at workshops hosted by USAID/Namibia. The output from these workshops was a set of forward-looking recommendations generated by participants. These recommendations outline significant actions to be taken, in public-private collaboration, on high-priority issues that would lead to the best development outcome for the country.

## **Science & Technology**

***Outcomes and Impacts of the State/Industry-University Cooperative Research Centers (S/IUCRC) Program.*** The National Science Foundation contracted with SRI International to study the outcomes and impacts of the State/Industry University Cooperative Research Centers (S/IUCRC) Program. The objectives of the proposed research were to document the outcomes and impacts on industry of S/IUCRC activities, to document the outcomes and impacts of the S/IUCRC activities on the local (state) economy, and to report lessons learned for program improvement and future planning. As part of the project SRI developed measures of the effects of S/IUCRC program activities on Center outcomes as perceived by member companies, the economic impact of these outcomes on member companies, and the economic impact of Center activities and outcomes on the local economy.

***Evaluating New York State Centers for Advanced Technology Program.*** SRI assessed the relationship between the CAT program and the state's economic development objectives, as well as the structure, administration, and achievements of the program and each of the state's ten centers for advanced technology. SRI developed appropriate metrics to assess desired results. Results of this study were used to support continuation of the program into a second decade.

***Assessment of Alberta Technology Centers.*** SRI evaluated three provincial research centers -- in telecommunications, microelectronics, and advanced manufacturing. SRI reviewed the centers' objectives, strategies, organization, and accomplishments in supporting industry growth. One recommendation to redirect investment saved the province nearly \$20 million.

***Assessment of Government Support for Technology-Based Industry.*** SRI evaluated the technology and industry support programs of two Asian nations, ten U.S. states, and four European countries. Included in the evaluation were venture capital programs, business incubators, university-industry research programs, technology-based industry parks, and technology education and awareness programs

***Assessment of R&D Performance of the Communications Research Laboratory in Japan.*** This project provided an international assessment of the research and development (R&D) performance of the Communications Research Laboratory (CRL), a leading Japanese research institute that conducts a wide range of basic and applied research. SRI assessed the international standing of CRL's specific

R&D areas relative to international leaders. The approach of this analysis is guided by the observation that the international standing of a laboratory is based not on the work of the majority of its staff but rather on the highly visible accomplishments of its most creative and productive scientists and research groups. Their work, and the recognition of its impact on the specific fields of research or technology, constitute the “peaks of excellence” visible to the scientific community and serve as the foundations on which the international reputation of the laboratory is built. The focus of this analysis will be on the quality of CRL’s contributions to science and technology and the international recognition of CRL’s top researchers and project teams.

***Evaluation of NSF’s Undergraduate Research Opportunities Program.*** NSF requested that SRI study the range and types of research experiences available to undergraduates, why individuals (faculty and students) choose to participate in these experiences, and the effects that the experiences have on students’ academic and career decisions. The number of such programs has grown fourfold in the past decade, and they embody a variety of objectives based on providing undergraduate students with research opportunities that enhance their understanding of science and the research process. A major objective is to encourage more minorities and other young people to choose career paths in science and technology. However, although some students inevitably decide that research is not for them, this is not necessarily considered a negative outcome as these students generally come away with a greater understanding of S&T and often acquire skills useful in life and other careers.

***Qualitative Evaluation Study of NSF’s Centers for Learning & Teaching.*** The Centers for Learning and Teaching program is a new NSF effort to train leaders in mathematics and science education and to engender improvements in the professional development of in-service math and science teachers. The program makes \$10 million grants available to “centers”—i.e., partnerships of universities and school districts—that have organized around the conduct of research in science and math education and in implementing improvements in the training and professional development of teachers. SRI conducted an evaluation of the centers’ performance, a task that has entailed multiple visits to each of 10 funded centers over a 3-year period.

***Fulbright Visiting Scholar Program.*** SRI is in the process of conducting an outcome assessment of the Visiting Fulbright Scholars Program. The program provides support for foreign scholars and professionals to come to the United States to conduct research or teach in U.S. institutions. The assessment

has entailed developing a sample of grantees from 1980 to 2000 in 16 countries, conducting interviews and focus groups with former grantees from most of those countries, and designing and conducting a survey of grantee. The survey is just about to be closed out, after which SRI will analyze survey findings and prepare a final report and executive summary.

***U.S. Fulbright Student Program.*** SRI has been conducting an outcome assessment of the U.S. Fulbright Student Program. The evaluation designed by SRI will survey program alumni who participated in the program between 1980 and 2000, and were hosted by foreign institutions representing all geographic regions of the world.

***Study of the Outcome & Impacts of the NSF Minority Postdoctoral Research Fellowships (MPRF) Program.*** NSF’s MPRF program provides opportunities to recent minority doctorate recipients in biological, social, behavioral, and economic sciences to obtain additional training, gain research experience under the sponsorship of established scientists, direct their research efforts across traditional disciplinary lines, and avail themselves of unique research resources, sites, and facilities. This study has two major components pertaining to higher education in S&E: (1) a survey of all fellowship recipients since the program’s inception in the late 1980s, and (2) analysis of national data on enrollments and degrees from NSF and National Center for Education Statistics (NCES) surveys for the purpose of determining the potential pool of minority applicants to this program. There is also a bibliometric component in this study.

***Obtaining Industry Views on Experiences in Collaboration with Federal Laboratories under CRADAs.*** The U.S. Department of Commerce, through the National Science Foundation, contracted with SRI to conduct a study to update the Department’s current state of knowledge about the experience of private sector firms that have entered into Cooperative Research and Development Agreements (CRADAs) with one or more federal laboratories. This was accomplished through conversations with a number of targeted companies that have entered into CRADAs with Federal laboratories. Subsequently, SRI integrated the results of the interviews into a presentation to the Industrial Research Institute’s External Research Director’s Network Meeting in Washington.

## **University Studies & Workforce Development**

***Michigan Technical Workforce Development Incentives.*** In this study funded by Michigan Economic Development Corporation, SRI reviewed the state's post-secondary financial incentives, policies and programs that support technical careers. The study also reviewed the federal resources that were being leveraged by the state, its students, and other potential technical workers. A set of national best practices in the design of vocational education incentives was compiled. The results of the study were used to assist the state align all available financial resources to ensure that they make technical careers more attractive, desirable and achievable for young people entering the workforce.

***Dallas Metroplex Higher Education Evaluation and Benchmark Study.*** For the Dallas Citizen's Council, SRI conducted an evaluation of higher education in the Dallas-Fort Worth Metroplex area. The study was designed to inform the Council's strategy to create a Tier 1 university in the region, and to guide future state spending requests. The study identified the key strengths and weaknesses of four public universities in North Texas, and identified models and options for possible structural changes in the region's higher education system. A focus was placed on developing world-class research capabilities relevant to the region's commercial base.

***Evaluation of the Partnership Program of Title II of the Higher Education Act.*** The U.S. Department of Education is sponsoring three different grant programs designed to encourage colleges of education and colleges of arts and sciences to improve the recruitment, training, retention, and professional development of the American teaching force. The three programs encourage reforms in teacher accountability, efforts to improve pre-service teacher training in content, pedagogy, and uses of technology, and productive partnerships between school districts, colleges of education, and colleges of arts and sciences. In our evaluation of the three programs, the SRI team has reviewed grantees' annual progress reports, surveyed grant leaders, school district administrators, administrators of individual schools, and deans and faculty at colleges of education and arts and sciences to gather data on the best improvements in teacher education sponsored by the grants. SRI has also conducted site visits to campuses, school district offices, and individual schools to witness reforms in the training of pre-service and in-service teachers and to thus inventory the most successful practices. The evaluations of the State and Recruitment grant programs are completed. The evaluation of the Partnership grants program is a five-year project and

is nearing the end of the third year. (Department of Education)

## ***Impact Analysis***

***Global Impacts Of Fedex On The New Economy.*** For the FedEx Corporation, a team of SRI economists conducted a comprehensive study to assess the FedEx's impacts on the New Economy. The assessment covered four impact areas: business impacts, consumer impacts, transportation/logistics industry impacts, and macroeconomic impacts. The study measured a corporation's impacts beyond traditional yardsticks, such as shareholder value, profits, employment, and tax contributions. In addition to conducting conventional economic analyses, the study team utilized impact modules, qualitative assessments, analytical constructs, and other innovative approaches to provide a comprehensive look at both New Economy and Old Economy influences and benefits generated by FedEx. A number of overriding New Economy themes were addressed in detail, including just-in-time inventory management, productivity growth, customer fulfillment, and the power of information technologies in transportation and logistics management.

***Economic Impacts and Benefits of a Biotechnology Park Development in Kobe, Japan.*** On behalf of the City of Kobe, SRI collaborated with Bechtel Corporation to plan a biomedical cluster strategy and park development plan for Kobe. The SRI team identified industry trends, opportunities, and market niches that fit with Kobe's strengths. SRI developed strategic development and investment attraction plans that involved major stakeholders, including the city government, business leaders, a consortium of Japanese universities, private and public-funded research facilities, potential venture capital providers, airport development authority, and the port authority. A major part of this study was the preparation of a detailed economic impact assessment.

***The Golf Economy – The Game's Impact on the U.S. Economy.*** SRI assessed the impact of golf on the U.S. economy for the World Golf Foundation, conducting one of the first comprehensive study of golf's total economic contribution at the national level. The study looked beyond golf's recreational value, at the sport's role as the nucleus of a major industry cluster that generates jobs, commerce, economic development, and tax revenues for communities throughout the country. The analysis included such important, but often ignored segments as golf tourism and golf-related real-estate development.

***Economic Impact of a Golf-Based Resort on the Curaçao Economy.*** On behalf of the Central Bank of the Netherlands Antilles, SRI conducted a comprehensive economic impact study to determine the effects and benefits of a proposed tourism resort, to include a Pete Dye-designed, 18-hole golf course. SRI developed a tailored economic model, and calculated the micro, sectoral and macro impacts of this resort, which could serve as a catalyst to accelerating tourism growth on Curacao.

***The Economic Impact of Native American Culture on the New Mexico Tourism Industry.*** In this project, SRI International developed a research methodology for measuring the economic impact of Native American reservations on the tourism industry in New Mexico. SRI developed a quantitative model which estimated the economic value of tourism visits to New Mexico attributable to Indian reservations. In the model, the SRI team included traveler survey data on total visitors, visits to reservations and other Indian attractions, visitor spending patterns, and direct and indirect tourism employment impacts. The team also assessed the fiscal impact of Indian attractions on the state budget.

***Economic Effects and Feasibility Evaluation of the Earth Systems Science Plaza.*** On behalf of California State University at Monterey Bay (CSUMB), SRI's Economics Practice and Higher Education Program joined forces to conduct a comprehensive feasibility assessment and impact study for an integrated Earth Systems Science Plaza at CSUMB. SRI assessed the viability and key elements of three components to be included in the Plaza – a new educational facility, an Earth Observatory (science museum), and a science business park – all utilizing CSUMB's unique Earth systems science capabilities. SRI prepared a vision and roles for the Plaza, evaluated the prospective usage of the three components, revenues generated from them, and costs involved in order to determine the Plaza's economic feasibility. SRI then prepared a detailed "roll-out" plan for bringing the Plaza to fruition. As a result of SRI's analysis, the University is moving forward to implement the Plaza concept.

***The Impact on Industry of Interactions with Engineering Research Centers.*** In this project, SRI examined the patterns of interaction that emerged between academic engineering and industry as a consequence of NSF's Engineering Research Center's (ERC) program. More specifically, the objective of the project was to identify the results of those interactions in terms of the types of impact that they have on industry, as well as assess the value of these impacts. SRI's team approach to the project involved the development of a draft conceptual model of possible ERC impacts on industry,

convening a series of industry participant focus groups to test and refine the model, collection and analysis of existing data from the ERC database and other materials available at NSF, preliminary interviews with a selected set of industry participants, a survey of ERC industry participants, and follow-up telephone interviews to further explore and validate information obtained from the survey.

***The Role of NSF's Support of Engineering in Enabling Technological Innovation.*** In 1995, the National Science Foundation contracted with SRI International to conduct a major 4-year study of how NSF support for engineering research has contributed to the development and commercialization of twelve significant recent innovations, which were selected at the inception of the project by an advisory panel. The six innovations studied were the Internet, magnetic resonance imaging (MNR); high performance polymer matrix composites, computer-aided design applied to electronic circuits; optical fiber for telecommunications; and, the cellular phone.

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