United States Government Accountability Office

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Report to the Chairman, Subcommittee on Science, Technology, and Space, Committee on Commerce, Science, and Transportation, U.S. Senate

November 2004

INFORMING OUR NATION

Improving How to Understand and Assess the USA's Position and Progress

GAO-05-1

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Improving How to Understand and Assess the USA's Position and Progress

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Highlights

Highlights of GAO-05-1, a report to the Chairman, Subcommittee on Science, Technology, and Space, Committee on Commerce, Science, and Transportation, U.S. Senate.

Why GAO Did This Study

There has been growing activity and interest in developing a system of key national indicators that would provide an independent, trusted, reliable, widely available, and usable source of information. Such a system would facilitate fact-based assessments of the position and progress of the United States, on both an absolute and relative basis. This interest emerges from the following perspectives.

- The nation's complex challenges and decisions require more sophisticated information resources than are now available.
- Large investments have been made in indicators on a variety of topics ranging from health and education to the economy and the environment that could be aggregated and disseminated in ways to better inform the nation.
- The United States does not have a national system that assembles key information on economic, environmental, and social and cultural issues.

Congressional and other leaders recognized that they could benefit from the experiences of others who have already developed and implemented such key indicator systems. GAO was asked to conduct a study on: (1) The state of the practice in these systems in the United States and around the world, (2) Lessons learned and implications for the nation, and (3) Observations, options, and next steps to be considered if further action is taken.

www.gao.gov/cgi-bin/getrpt?GAO-05-1.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Christopher Hoenig at (202) 512-6779 or hoenigc@gao.gov.

What GAO Found

GAO studied a diverse set of key indicator systems that provide economic, environmental, social and cultural information for local, state, or regional jurisdictions covering about 25 percent of the U.S. population—as well as several systems outside of the United States. GAO found opportunities to improve how our nation understands and assesses its position and progress.

Citizens in diverse locations and at all levels of society have key indicator systems. Building on a wide array of topical bodies of knowledge in areas such as the economy, education, health, and the environment, GAO found that individuals and institutions across the United States, other nations, and international organizations have key indicator systems to better inform themselves. These systems focus on providing a public good: a single, freely available source for key indicators of a jurisdiction's position and progress that is disseminated to broad audiences. A broad consortium of public and private leaders has begun to develop such a system for our nation as a whole.

These systems are a noteworthy development with potentially broad applicability. Although indicator systems are diverse, GAO identified important similarities. For example, they faced common challenges in areas such as agreeing on the types and number of indicators to include and securing and maintaining adequate funding. Further, they showed evidence of positive effects, such as enhancing collaboration to address public issues, and helping to inform decision making and improve research. Because these systems exist throughout the United States, in other nations, and at the supranational level, the potential for broad applicability exists, although the extent of applicability has yet to be determined.

Congress and the nation have options to consider for further action. GAO identified nine key design features to help guide the development and implementation of an indicator system. For instance, these features include establishing a clear purpose, defining target audiences and their needs, and ensuring independence and accountability. Customized factors will be crucial in adapting such features to any particular level of society or location. Also, there are several alternative options for a lead entity to initiate and sustain an indicator system: publicly led, privately led, or a public-private partnership in either a new or existing organization.

Observations, Options, and Next Steps

Key indicator systems merit serious discussion at all levels of society, including the national level, and clear implementation options exist from which to choose. Hence, Congress and the nation should consider how to

- improve awareness of these systems and their implications for the nation,
- support and pursue further research,
- help to catalyze discussion on further activity at subnational levels, and
- begin a broader dialogue on the potential for a U.S. key indicator system.

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G A O
Accountability * Integrity * Reliability

Comptroller General of the United States

United States Government Accountability Office
Washington, D.C. 20548

November 10, 2004

The Honorable Sam Brownback
Chairman
Subcommittee on Science, Technology, and Space
Committee on Commerce, Science, and Transportation
United States Senate

Dear Mr. Chairman:

Since the founding of our republic, the importance of informing the nation has been an essential component of a healthy democracy. In our country, power resides with the people and their duly elected representatives, and knowledge serves to both inform and constrain the use of power. This idea is embodied in forms ranging from the decennial census to the notion of annually reporting on the state of the union, with its history of providing a broad, general picture of the nation's position and progress, along with the President's agenda for the coming year.

Our founding fathers recognized that this critical issue needed ongoing attention. President George Washington, in his first annual message to Congress on January 8, 1790, said, "Knowledge is in every country the surest basis of public happiness. In one in which the measures of government receive their impressions so immediately from the sense of the community as in ours it is proportionably [sic] essential." Since that time, there has been a long history—checkered by both success and failure—of attempts to create ever more advanced ways to inform our public dialogues and generate a context for civic choices and democratic governance.

This bedrock principle of informing our nation and its citizens has maintained its simple, common sense relevance for centuries. Yet, it has also evolved and adapted over time to encompass new national and global challenges.

At the time of our nation's founding, collecting and disseminating information was achieved primarily through word of mouth and the printing press, drawn from few institutional sources, and traveled at speeds of 10 to 20 miles per hour. The availability of information was primarily limited to elite groups, and broad general perspectives were difficult to develop because of a dearth of factual information.

Today, information is collected and disseminated at the speed of light, is generated in massive amounts from an array of sources, and is available throughout the world to almost anyone. It is so diverse and rich that general perspectives are difficult to develop because of a surfeit of information.

Yet it is just those perspectives we now need in order to work through the short- and long-term challenges facing our nation, particularly when, at the federal level, the gap between public expectations and available resources is expected to widen. There is no substitute for being able to understand the whole (e.g., the position and progress of the nation) in order to better assess and act on the parts (e.g., the various key issues that we face).

The opportunity before us is to build sophisticated information resources and comprehensive key indicator systems that aggregate vital information across sectors, levels of societies, and institutions. These would be available to any person or institution, anywhere at any time, and for any purpose.

They would add a key dimension to how we inform ourselves. We now have many diverse and extensive bodies of information on issues of limited focus (e.g., health care). But we could use comprehensive key indicator systems on a broader array of critical issues to help generate a broader perspective, clarify problems and opportunities, identify gaps in what we know, set priorities, test effective solutions, and track progress towards achieving results. For instance, across the federal government, such systems could inform a much needed re-examination of the base of existing programs, policies, functions, and activities.

To be a leading democracy in the information age may very well mean producing unique public sources of objective, independent, scientifically grounded, and widely shared quality information so that we know where the United States stands now and how we are trending, on both an absolute and relative basis—including comparisons with other nations. By ensuring that the best facts are made more accessible and usable by the many different members of our society, we increase the probability of well-framed problems, good decisions, and effective solutions.

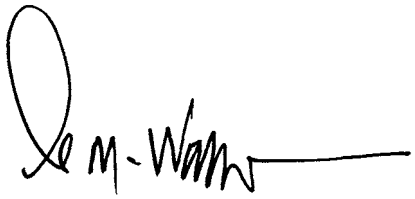
The stakes are high, including considerations regarding allocations of scarce public resources, strengthing the economy, creating jobs, stimulating future industries, enhancing security, promoting safety, strengthening our competitive edge, sustaining the environment,

preserving our culture, and promoting quality of life. As a result, Congress has a crucial interest in the evolution of comprehensive key indicator systems throughout our nation and the world.

Given the variety of activity and interest we observed at all levels of U.S. society on this issue, this report can benefit not only those seeking to develop a national key indicator system, but also the local and state communities who would like to learn more, develop new systems, or refine their existing efforts. We look forward to working with you and other leaders in joining the effort to develop new approaches to informing our nation that will be of truly lasting value to the American people.

Copies of this report are being sent to appropriate congressional committees and other interested parties in the United States and around the world. We will also make copies available to others upon request. This report will also be available at no charge on the GAO Web site at http://www.gao.gov. If you or your staff has any questions about matters discussed in this report, please contact me at (202) 512-5500 or Christopher Hoenig, Managing Director, Strategic Issues, at (202) 512-6779 or hoenigc@gao.gov. Key contributors are listed in appendix VIII.

Sincerely yours,



David M. Walker
Comptroller General
of the United States

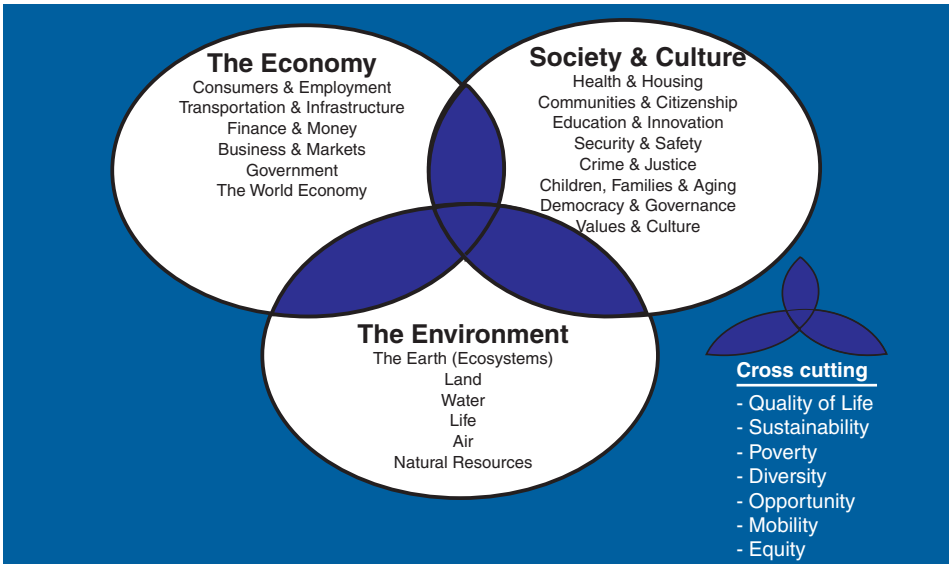
Summary

Purpose

A substantial amount of activity is taking place throughout the United States and around the world to develop comprehensive key indicator systems for communities, cities, states, and nations that include essential economic, environmental, and social and cultural indicators. These systems help people and organizations answer vital questions, such as: How is their community, state and/or nation as a whole doing in fact? How does it compare to others or to prior conditions? And how does that information help them make better choices? Such systems can become an essential part of civic dialogue and decision making.

Many in the United States believe that comprehensive key indicator systems represent a significant and evolving opportunity to improve how individuals, groups, and institutions inform themselves. This is because they can enable assessment of the position and progress not just of a wide range of jurisdictions throughout the country, but also of the nation as a whole. Figure 1 illustrates the variety of topics that might be included in such a system.

Figure 1: Possible Topics for a Comprehensive Key Indicator System



Source: GAO.

To begin the process of considering whether or how to develop such a system at the national level in the United States, congressional and other

leaders have an interest in better understanding the experiences of those who have already designed and implemented comprehensive key indicators systems. GAO was **not** asked to develop a set of national indicators or conduct an assessment of the position and progress of the United States, but rather to address the following three questions.

1. What is the state of the practice in developing and implementing comprehensive key indicator systems in the United States and around the world?

2. What are the lessons learned from these systems and future implications?

3. What are some options for Congress to consider in identifying an organization to develop and implement a national system?

Background

An **indicator** is a quantitative measure that describes an economic, environmental, social or cultural condition over time. The unemployment rate, infant mortality rates, and air quality indexes are a few examples.

An **indicator system** is an organized effort to assemble and disseminate a group of indicators that together tell a story about the position and progress of a jurisdiction or jurisdictions, such as the City of Boston, the State of Oregon, or the United States of America. Indicator systems collect information from suppliers (e.g., individuals who respond to surveys or institutions that provide data they have collected), which providers (e.g., the Census Bureau) then package into products and services for the benefit of users (e.g., leaders, researchers, planners, and citizens).

Topical indicator systems involve specific or related sets of issues, such as health, education, public safety, employment, or transportation. They also form the foundation of information resources for the general public, the media, professionals, researchers, institutions, leaders, and policymakers.

Comprehensive key indicator systems pull together only the most essential indicators on a range of economic, environmental, and social and cultural issues, as opposed to a group of indicators on one topic. Comprehensive systems are only as good as the topical systems they draw from.

Both comprehensive and topical indicator systems use indicators from public and private sources, and often disseminate this information to diverse audiences, such as in a report or on a Web site. Ultimately, however, comprehensive key indicator systems attempt to address questions that topical systems (which focus on a specific issue) or current statistical databases (which are detailed and highly technical) cannot answer for wide and diverse audiences.

Comprehensive key indicator systems can help to identify a jurisdiction's significant challenges and opportunities, highlight their importance and urgency, inform choices regarding the allocation of scarce public resources, assess whether solutions are working, and make comparisons to other jurisdictions. They exist in a number of countries, including Australia, Canada, Germany, and the United Kingdom, as well as supranational entities like the European Union (EU).[1]

There is a long history of considering the need for a national comprehensive key indicator system in the United States going back at least to the 1930s. Currently, although a number of cities, states, and regions in the United States have comprehensive key indicator systems, there is no such system for the United States as a whole. The federal government has, however, invested billions of dollars in a rich variety of topical information that could underpin a national system.[2] It also supports various efforts to enhance the availability of that information, such as Fedstats and *The Statistical Abstract of the U.S.*[3]

[1] In preparation for its World Indicators Forum in November 2004, the Organisation for Economic Co-operation and Development (OECD)—one of the major international institutions devoted to indicators, statistical data, and policy analysis—is developing a "Knowledge Base on National and International Experiences" of existing and developing national systems in the 30 OECD member nations as well as others like Brazil, China, and India. See http://www.oecd.org/oecdworldforum.

[2] Expenditures for federal statistical programs were approximately $4.7 billion in fiscal year 2004.

[3] Fedstats is an on-line effort that provides links to statistical information from numerous federal agencies. See http://www.fedstats.gov. The statistical abstract is available online from the Census Bureau at http://www.census.gov/statab/www.

Currently, a consortium of not-for-profit, private, and public sector efforts is collaborating to create a comprehensive key indicator system for the United States.[4] This initiative, known as the Key National Indicators Initiative (KNII), emerged after GAO—in cooperation with the National Academies—convened a forum in February 2003.[5] At this forum, a cross-section of leaders provided their views on whether and how to develop such a national system and believed that it was an important idea that should be explored further.[6] They also suggested that it should build on lessons learned from other efforts both around the country and worldwide.

The KNII has grown to include a diverse group of over 200 leaders from government, business, research, and the nonprofit sector. This group consists of experts as well as representatives from broad-based institutions throughout the nation. The National Academies currently houses a secretariat to incubate this effort. It has recently begun to organize more formally and received initial operational funding. One of its goals is to create and test a prototype "State of the USA" Web site.

Scope and Methodology

This report is a first step in examining how existing comprehensive key indicator systems are working and their implications for the nation. It presents information obtained from a select, but not necessarily representative, group of 29 comprehensive key indicator systems at all levels of society and diverse geographic locations, as shown on table 1. GAO interviewed representatives from each of the selected indicator systems, as well as a range of experts in the field. In addition, GAO conducted in-depth reviews—including interviews with officials, stakeholders, and users—of 5 of these 29 systems: Boston, Oregon, Germany, the United Kingdom, and the EU. GAO also studied U.S. topical indicator systems in five areas: the business cycle, science and engineering, health, children and families, and aging. To explore options for Congress,

[4] While federal agencies (e.g., GAO, the Office of Management and Budget, and major federal statistical agencies) do not play a formal role in the effort, they regularly communicate, coordinate, offer routine advice, observe meetings, and exchange professional knowledge.

[5] The National Academies is the umbrella organization for four of the nation's premier scientific organizations: the National Research Council, the National Academy of Sciences, the Institute of Medicine, and the Institute of Engineering.

[6] GAO, *Forum on Key National Indicators: Assessing the Nation's Position and Progress*, GAO-03-672SP (Washington, D.C.: May 2003).

GAO drew upon its professional judgment, historical and legal analysis, fieldwork, and expert interviews.

Table 1: Comprehensive Key Indicator Systems Selected for GAO's Study

Name of system	Approximate population	Approximate duration (in years)
U.S local/regional level		
State of the Region (Southern California)	17,123,000	7
Chicago Metropolis 2020	8,090,000	8
New York City Social Indicators	8,080,000	15
Index of Silicon Valley (California)	2,300,000	12
King County Benchmarks (Washington)	1,760,000	14
Social Assets and Vulnerabilities Indicators (Indianapolis)	1,600,000	11
Indicators for Progress (Jacksonville, Fla.)	1,200,000	19
Hennepin County Community Indicators (Minneapolis)	1,120,000	9
Community Atlas (Tampa area, Fla.)	1,070,000	7
Compass Index of Sustainability (Orange County, Fla.)	965,000	12
Portland Multnomah Benchmarks	678,000	11
Baltimore's Vital Signs	640,000	4
Boston Indicators Project	590,000	7
Milwaukee Neighborhood Data Center	590,000	13
Sustainable Seattle	570,000	12
Denver Neighborhood Facts	560,000	10
Santa Cruz County Community Assessment Project	250,000	11
Benchmarking Municipal and Neighborhood Services in Worcester (Massachusetts)	175,000	6
Santa Monica Sustainable City (California)	84,000	10
Burlington Legacy Project (Vermont)	39,000	5
U.S. state level		
North Carolina 20/20	8,407,000	9
Minnesota Milestones[a]	5,059,000	13
Oregon Benchmarks	3,560,000	15
Results Iowa	2,944,000	5
Maine's Measures of Growth	1,306,000	11
Social Well-Being of Vermonters	619,000	11

(Continued From Previous Page)

Name of system	Approximate population	Approximate duration (in years)
National level outside the United States		
German System of Social Indicators	83,000,000	30
United Kingdom Sustainable Development Indicators	60,000,000	5
Supranational level		
European Structural Indicators	450,000,000	4

Source: GAO.

Note: for more information on each of these systems, see app. III of this report. The Web links for each of these systems can be found at http://www.keyindicators.org.

[a]Since GAO conducted its interviews in fall 2003, Minnesota Milestones ceased to be an active system. State officials told us that the Web site will be maintained but there are no plans to update the data in the near future.

GAO selected comprehensive key indicator systems that were recognized by experts and others as being useful and accessible; and had been in existence for more than 2 years. Also, GAO asked national associations representing state and local governments to validate the selections. The European examples were selected after consultation with OECD, several European national statistical offices, and other experts. GAO selected one system in each of the topical areas it reviewed on the basis of experts' recommendations. GAO also conducted a literature review. Importantly, GAO has not defined explicit, objective criteria for the success or failure of a comprehensive key indicator system. More research is needed in this area because so many situational, evaluative, and contextual factors influence the determination of such criteria.

Most of the graphics presented in this report from the indicator systems GAO studied are only to illustrate the types of information and the variety of ways it is presented in the reports or on the Web sites of these systems. The examples are not intended to highlight or frame discussions of the substantive issues conveyed by them.

GAO did not, nor was it asked to, catalogue the full universe of the potentially large number of topical or comprehensive key indicator systems. Moreover, indicators are only one part of the complex knowledge base required to inform a nation. For instance, comprehensive key indicator systems must be supported by detailed databases for those who want or need to conduct more extensive research or analysis. A review of these databases and other elements that contribute to an informed society are beyond the scope of this report.

Given the relatively small number of systems GAO studied in-depth, this report's findings and conclusions may not be universally applicable. GAO did not review the entire body of knowledge associated with indicator systems in either private enterprises or government agencies and did not perform a formal cost and benefit analysis of the systems reviewed. Nor did GAO evaluate the federal statistical system and its related agencies. Most of the indicator system efforts GAO studied are not necessarily comparable in size and political-economic structure to the United States, which potentially limits the validity of generalizations to the U.S. national context.

To gain additional insights, GAO solicited and received comments on a draft copy of the report from over 60 experts who possess knowledge and experience in this field, including leaders from the statistical and scientific communities. Sections of the report were also reviewed by the systems GAO studied to confirm facts and figures. GAO incorporated comments where appropriate in this final version. GAO's work was conducted from July 2003 through September 2004 in accordance with generally accepted government auditing standards.

Results in Brief

GAO found that comprehensive key indicator systems are active, diverse, and evolving. Individuals and institutions from local, state, and regional levels across the United States—as well as some other nations and the EU—have comprehensive key indicator systems to better inform themselves. GAO found enough similarities in the challenges they encountered and the positive effects they have had to view them as a coherent, noteworthy development in governance. They also have potentially broad applicability. Accordingly, GAO has identified key design features and defined a set of options for Congress and the nation to consider regarding the further development of comprehensive key indicator systems at all levels of society, including the U.S. national level.

State of the Practice: Citizens and Institutions in Diverse Locations and at All Levels of Society Have Comprehensive Key Indicator Systems

Jurisdictions throughout this country and around the world are operating comprehensive key indicator systems and have been for years. Many recognize that these systems could represent a significant tool to better inform public and private debate and decision making.

Topical Systems Provide the Foundation for Comprehensive Key Indicator Systems

The United States has a wide variety of topical indicator systems at the national level that provide a resource for comprehensive key indicator systems to draw upon. The interrelationship between topical and comprehensive key indicator systems is complementary. Topical systems form the essential underpinning for aggregating information into comprehensive key indicator systems. Comprehensive key indicator systems create a broad picture for users that illuminates the relative coverage, depth, and sophistication of topical systems. The broader perspective that comprehensive key indicator systems provide can also help identify new areas where topical indicators are needed.

One of the U.S. national topical indicator systems is Healthy People (a federal effort led by the Department of Health and Human Services). This system provides a set of national health objectives, along with indicators to measure progress, which are revisited every 10 years. It also highlights 10 leading health indicators, such as physical activity, overweight and obesity, tobacco use, and substance abuse. Since it was established in 1979, Healthy People has engaged a diverse group of stakeholders throughout the country, including a Healthy People Consortium. The Healthy People Consortium is a group of public and private organizations that is dedicated to taking action to achieve the Healthy People agenda. Further, most states have their own Healthy People plans.

Comprehensive Key Indicator Systems Are Active, Diverse, and Evolving

The comprehensive key indicator systems GAO studied each bring together diverse sources of information to provide an easily accessible and useful tool for a broad variety of audiences and uses. The Boston Indicators Project, for example, brings together a set of indicators from sources such as the U.S. decennial census, state and city agencies, nonprofit organizations, and universities. It groups the indicators into categories and established goals in these areas.[7]

These systems are oriented toward both public and private choices. They incorporate individual and institutional perspectives and address a wide range of audiences, including business, nonprofit, government, and media users, as well as the general public. A small business owner of a company that provides health care services, for example, might use information from an indicator system to investigate market opportunities in a particular

[7] The Boston Indicators Project's categories include civic health, cultural life and the arts, the economy, education, the environment, housing, public health, public safety, technology, and transportation.

geographic area or demographic group. A foundation or nonprofit could use indicators regarding the status of children's education, health, and family environment to inform decisions to fund certain grant applications. Information from comprehensive key indicator systems could be used to help government leaders establish priorities and allocate scarce public resources. They can also help individuals understand more about issues that affect their life choices, such as how progress in community development, public safety, and education could affect where they might want to live.

Comprehensive Key Indicator Systems Are Oriented Primarily toward Learning or Outcomes

GAO found that comprehensive key indicator systems are primarily, but not exclusively, either learning-oriented or outcome-oriented.[8]

Some systems are oriented more toward learning and information exchange. The indicators in these systems are primarily selected based upon the information needs of their target audiences and are grouped into categories without specific links to outcomes or goals. Information is often presented on Web sites with limited commentary or analysis of results. The Social Assets and Vulnerabilities Indicators (SAVI) system in Indianapolis is an example of a learning-oriented system. It collects, organizes, and presents information on "community assets," such as schools, libraries, hospitals, and community centers. It also includes indicators in areas like health, education, and criminal justice that highlight "vulnerabilities," such as neighborhoods with high crime or unemployment. Learning-oriented systems enable citizens, researchers, and leaders to learn more about and monitor conditions in their jurisdictions and may help inform decision making.[9]

Other comprehensive key indicator systems encompass an outcome-oriented focus on societal aspirations or goals. These indicator systems are used to monitor and encourage progress toward a vision for the future—or in some cases a specific set of goals—which have been established by the people and institutions within a jurisdiction. Most of the

[8] The term outcome-oriented refers to a general concern with impact on the conditions of society. Outcome statements range from broad aspirations (e.g., a healthy population) to specific objectives or targets for change over a specified time period (e.g., increasing available jobs by 10 percent over a 4 year period).

[9] The term jurisdiction is used throughout this report to refer to neighborhoods, communities, cities, regions, states, nations, or other entities that, by definition, cover a geographic area and incorporate both public and private activities.

systems GAO studied were outcome oriented. One of these, the Oregon Benchmarks system, measures progress toward a strategic vision and related goals for the state, known as Oregon Shines. It is organized around three broad goals (1) quality jobs; (2) safe, caring, and engaged communities; and (3) healthy and sustainable surroundings; each of which has specific objectives. Under the goal for safe, caring, and engaged communities, for example, Oregon has a specific objective to decrease the number of students carrying weapons, measured by the percentage of students who report carrying them (based on a state wide survey).

Attention to Relevant Issues, Aspirations, and Questions Is Important in the Development and Evolution of Comprehensive Key Indicator Systems

GAO's work showed that an orientation toward outcomes—whether outcomes were formative and implicit or advanced and explicit—had an important influence on focusing and facilitating the development of the system. Audiences are more likely to use information if they see how it is relevant to their aspirations or interests. Therefore, outcome-oriented systems can help create focused information for their audiences that may enhance the use of and continuing support for these systems.

Moreover, broad discussions about strategic issues and opportunities can help to reframe existing problems in new ways or identify important gaps in knowledge about certain issues or populations. The notion of progress assumes some agreement on the most important questions, issues, or opportunities facing a jurisdiction. The civic dialogue and processes used to reach common ground in the systems GAO studied were often extensive, complex, and time-intensive. Such processes are a pre-requisite for initiating, and are critical in sustaining, any comprehensive key indicator system.

Lessons Learned and Implications: Comprehensive Key Indicator Systems Are a Noteworthy Development with Potentially Broad Applicability

Comprehensive key indicator systems add a dimension of information about society that is currently not available to most people. The 29 systems GAO studied showed evidence of positive effects, such as improving decision making, enhancing collaboration on issues, and increasing the availability of knowledge. These systems, although very diverse, encountered similar challenges and applied many of the same design features. Because GAO found systems at all levels of society, including other nations, this demonstrates the potential for transferability—meaning that approaches used in other jurisdictions may be adapted and used elsewhere. Thus, the development and use of comprehensive key indicator systems has the potential for broad applicability throughout the United States at the subnational and national levels.

Comprehensive Key Indicator Systems Showed Some Evidence of Positive Effects

GAO found that comprehensive key indicator systems showed evidence of positive effects in four areas. They enhanced collaboration to address public issues, provided tools to encourage progress, helped inform decision making and improve research, and increased public knowledge about key economic, environmental, and social and cultural issues.

These positive effects are a function of how different stakeholders use indicators (along with other resources and information) within the context of various political, economic, and other factors. Individuals, the media, businesses, non-profits, interest groups, professionals, and governments, among others, all may play a role in influencing ideas, choices, and actions. Thus, it is difficult to attribute actions directly to an indicator system. In several cases, these systems generated information that appeared to spur action and produce positive effects in the short term. It can take years, however, for an indicator system to become a widely used and effective tool.

Enhanced Collaboration to Address Public Issues

By revealing significant public policy problems or raising the profile of new, divisive, or poorly understood issues, comprehensive key indicator systems can help spur or facilitate collaboration. Focusing attention on a particular condition may bring increased pressure to bear on diverse parties in the public and private sectors to collaborate on strategies for change. Providing a common source of information also facilitates a shared understanding of existing conditions.

The Chicago Metropolis 2020 indicator report, for example, highlighted the region's severe traffic congestion and its effects. This report was a key factor leading to the formation of a task force of public and private leaders, supported by the state's governor and legislature, to deal with transportation problems in the Chicago metropolitan region. The task force recommended actions intended to transform transportation and planning agencies into a more coherent regional system, which are under consideration.

Provided Tools to Encourage Progress

Users of comprehensive key indicator systems found that they provide an effective tool for monitoring and encouraging progress toward a shared vision or goals. Some jurisdictions used information from these systems to assess the extent to which various parties, including government agencies,

not-for-profit organizations, and businesses, contributed to achieving results.

For instance, the European Structural Indicators system helps officials determine how well countries in the EU are meeting agreed-upon policy goals that are spelled out in the Lisbon Strategy. Spotlighting each country's progress, or lack thereof, in an annual, publicly released report encourages each country to improve its performance, which could then raise the overall position of the EU.[10] When the EU determines, based on a review of the related indicators, that a member country has not made sufficient progress toward a particular goal, it can recommend specific actions to help further that country's progress. Some countries have changed their policies in response to EU recommendations, such as Spain, which has agreed to take steps to raise its employment rate among women.

Helped Inform Decision Making and Improved Research

Bringing relevant information together in a single resource helps leaders, researchers, and citizens to easily access and use it. Therefore, comprehensive key indicator systems—if they are viewed as credible, relevant, and legitimate—provide the capacity for many to work from, and make choices based upon, the same source of reliable information. This also enhances efficiency by eliminating the need for individuals or institutions to expend additional time and resources looking for or compiling information from disparate sources. Researchers, for example, could more easily determine what knowledge exists to help identify existing or new areas meriting further study.

In Indianapolis, officials from the Social Assets and Vulnerabilities Indicators system (SAVI) provided input, based upon the system's economic, public safety, demographic, and program indicators, on where to locate a new Young Men's Christian Association (YMCA) facility for the city. SAVI used its indicators to map areas of need and found that numerous parts of the city were equally in need of better recreation and educational facilities. That is, no one part of the city was a clear-cut choice based on analysis of the indicators. As a result, the YMCA made a decision to not construct a single new building. Instead it created a "YMCA Without

[10] Commission of the European Communities, *Report from the European Commission to the Spring European Council: Delivering Lisbon Reforms for the Enlarged Union* (Brussels: 2004).

Walls" program offering a variety of new services throughout the city in existing facilities, such as churches, schools, and community centers.

Increased Knowledge about Key Economic, Environmental, and Social and Cultural Issues

Comprehensive key indicator systems allow users to better understand the interrelationships between issues that may not have been apparent when viewed separately. New insights may also result from looking at economic, environmental, and social and cultural information from crosscutting perspectives (e.g., opportunity, equity).

Further, comprehensive key indicator systems helped expose information or knowledge gaps about significant issues. These gaps may result from (1) the absence of information; (2) inadequate knowledge about the interrelationships among various indicators (e.g., the impact of economic development on crime rates); or (3) a poor understanding about the conditions of certain population groups. As a result, indicator system providers and users can help spur new data collection efforts or redirect existing efforts to reduce gaps and increase knowledge.

For example, when developing the Compass Index of Sustainability (in Orange County, Florida), gaps were identified in knowledge about the county's aging population. Neither government agencies nor other organizations were collecting adequate data on the health and well-being of aging residents. The system's report commented on these gaps, leading county commissioners to appoint a task force. The task force reviewed existing data collection efforts and recommended improvements that are now underway, thereby increasing knowledge about a major segment of the population.

System Costs Are Difficult to Quantify

Most of the systems GAO studied are located in larger organizations or agencies and the reported costs dedicated to developing, implementing, and sustaining them are difficult to quantify. Because the system managers were able to borrow or leverage staff and resources from their parent organizations, the full costs of the time and effort to develop, implement, and sustain these systems were not fully captured. In most cases, one to three persons worked on the project full-time. For example, one person (in the city's Department of Public Works) manages Santa Monica's Sustainable City indicator system. Further, because these systems rely primarily on indicators or data collected by others, the costs incurred by

others to collect data generally are not reflected as part of an indicator system's costs.

According to officials from the systems GAO reviewed, systems' significant cost items included acquiring and managing technology, paying staff and consultants, and printing and distributing reports. For example, representatives of the Southern California Association of Governments' State of the Region system said that they dedicated approximately $200,000 for their system's 2002 annual indicators report. Of this amount, approximately $25,000 went to printing the reports, which were distributed to various officials, academia, businesses, and nonprofit organizations in southern California. The rest of the funding was for two staff members and related costs to draft and process the report. This cost structure was for the most part consistent with the other systems GAO studied. However, any variation in costs in relation to the size of the population covered by the system has not yet been determined.

Certain Design Features Are Needed to Overcome a Range of Key Challenges

GAO identified a number of challenges experienced by the 29 comprehensive key indicator systems it reviewed and identified nine common design features they exhibited. The nature of these challenges, as well as the ways in which the design features were applied, varied based on factors such as the system's size, purpose, target audiences, and the jurisdiction's political and economic structures.

The primary challenges that systems experienced included (a) gaining and sustaining stakeholders' support, (b) securing and maintaining adequate funding, (c) agreeing on the types and numbers of indicators to include, (d) obtaining indicators or data for the system, and (e) effectively leveraging information technology. Many of these challenges are continuous and interrelated. For example, challenges in obtaining indicators or data for the system are exacerbated when systems have difficulty maintaining adequate funding.

To address these challenges up front and help ensure a lasting, well-used system, GAO's work in the United States and around the world strongly suggests that the development of a comprehensive key indicator system at any geographic level—including a U.S. national system—would benefit from considering and applying these nine design features. At the outset, establishing a clear purpose and defining a target audience and its needs are most crucial. Decisions about how to incorporate other important features into the system's design should follow decisions about purpose and target audience.

1. Establish a Clear Purpose and Define Target Audiences and Their Needs

Deciding whether the system will focus primarily on allowing users to learn more about the conditions of their jurisdiction, or whether it would also measure progress toward specific outcomes, is a first step in designing a comprehensive key indicator system. Another important factor is whether to design the system for a specifically targeted audience, such as government policymakers, or for a wider audience, including business leaders, researchers, not-for-profit organizations, the media, and citizens. The media are an especially critical audience because of the role they often play in conveying the information presented in indicator systems to the general public.

2. Ensure Independence and Accountability

It is important to insulate comprehensive key indicator systems from political pressures and other sources of potential bias as much as possible. When indicator systems are perceived as biased toward a particular ideological or partisan perspective, the indicators are less likely to have credibility and may lose support from a broad group of users. Mechanisms for helping to ensure transparency and accountability to stakeholders include demonstrating that the system's managers are achieving the indicator system's stated aims, using scarce resources effectively, remaining independent from political processes, and emphasizing problem areas or opportunities for improvement.

3. Create a Broad-Based Governing Structure and Actively Involve Stakeholders

A comprehensive key indicator system should be governed by a structure that includes a blend of public and private officials and represents views from various communities.[11] The system's governing officials typically make decisions about how to apply and implement the design features and set the policies for the system's staff to follow, including what products and services will be provided. The challenge of gaining and sustaining support is continuous, even among systems with champions or large user bases. A

[11] Such communities could include, but not necessarily be limited to, the accountability, statistical, scientific and research, business, media, civic, leadership, finance, and not-for-profit communities, including key geographic and demographic groups.

governing structure representing various interests can help ensure that the system maintains a balanced perspective to meet diverse needs and avoid "capture" by one party or particular interest group.

4. Secure Stable and Diversified Funding Sources

Securing adequate funding to initiate the system and sustain it over time is a constant challenge. One way to help ensure that funding remains stable over time—and an important aspect of maintaining independence of the system—is to diversify the number and types of funding sources. GAO found that a lack of diversified funding sources made indicator systems more vulnerable to fiscal constraints. Systems that relied on multiple funding sources, such as government, corporate, and non-profit foundations, could make up for reductions from one source by turning to others.

5. Design Effective Development and Implementation Processes

It is critical to have transparent, collaborative, and repeatable processes in place to effectively carry out basic functions of a comprehensive key indicator system, including, but not limited to

- developing and modifying an organizing framework for the indicators,
- selecting and revising the indicators on an ongoing basis,
- acquiring indicators or data to compute indicators as needed,
- engaging data providers,
- assessing the quality and reliability of the indicators or data, and
- seeking and maintaining funding.

For example, many of the indicator systems GAO reviewed established criteria for facilitating the process of selecting indicators, such as relevance, comparability, and reliability. Selecting indicators is particularly challenging because it involves making subjective judgments about, and reaching agreement on, the relative importance of issues to a jurisdiction.

6. Identify and Obtain Needed Indicators or Data

Comprehensive key indicator systems often report on indicators or use data that are originally collected by others. Identifying and gaining access to indicators or data that are controlled by other organizations is critical to these systems. Some systems have established formal processes that specify how they will use the data and when and in what form they will receive the data from providers. In addition to having legal authority to access the information, the system should have responsibility, including legal responsibility, for protecting the privacy of the information when necessary.

7. Attract and Retain Staff with Appropriate Skills

Systems cannot operate effectively on a day-to-day basis if they do not have staff with appropriate skills and abilities. The ability to collaborate with diverse stakeholders is a fundamental requirement. Systems also need to involve people with a wide variety of skills and knowledge in areas including statistics, information technology management, and marketing. Working knowledge and experience with key economic, environmental, and social and cultural issues are also important.

8. Implement Marketing and Communications Strategies for Target Audiences

Reaching diverse audiences, including the print and electronic media, requires multifaceted marketing and communications strategies. These strategies spread the word about the existence and features of the system; disseminate information on what the indicator trends are showing; help to encourage a broader base of individuals and organizations to make use of the system; and provide training and assistance to users.

9. Acquire and Leverage Information Technologies

The development of advanced information technologies (e.g., the World Wide Web) has transformed the tools available for comprehensive key indicator systems, although the extent to which systems have leveraged these technologies varied in the systems GAO reviewed. According to many of the system managers, effectively using technology, including the Internet, has made it possible to transfer data quickly, disseminate it economically, and make it more widely available. However, gaining access

to new technologies can be costly and requires staff or users to have technical expertise.

Comprehensive Key Indicator Systems Have Potentially Broad Applicability

Comprehensive key indicator systems exist across all levels of society, and GAO's review of selected systems indicates that these systems have potentially broad applicability. They exhibit similar features that can be transferred and adapted by other systems, and have years of experience from which to draw. Further, existing mainstream information technologies have lowered costs of distribution and increased the methods available to make information more accessible and usable. Other developed nations already have comprehensive key indicator systems. Several specific factors demonstrate the feasibility for a U.S. national system.

Strong Foundations. Since comprehensive key indicator systems for the most part aggregate existing indicators to enhance dissemination and usage, a U.S. system has a large body of indicators from which to select. An array of existing topical indicator systems are continually evolving and developing broader conceptions of how to understand and assess a society's position and progress.

Demonstrated Scalability and Comparability. GAO has found working systems at all levels of society in the United States and abroad, including neighborhoods, communities, cities, regions, states, nations, and supranational entities. They range from small population scales in the millions to the largest system GAO studied, the EU, at over 450 million.[12] Hence, a system for the U.S. population of over 290 million is potentially feasible.

Evidence of Transferability. Elements from existing systems are being adapted by new entities to meet specific needs and interact with one another, especially at the local levels in the United States. For example, the Boston Foundation has developed technology and processes that could be used by other cities, and a group of organizations in Dallas has developed a comprehensive key indicator system (Dallas Indicators) that is, in part, based on the Boston Indicators Project. Hence, there is abundant knowledge and expertise at varying scales that could be applied, with recognition of unique factors, to a U.S. national system.

[12] The United States is not directly comparable to the EU, however, on a range of political, economic, cultural, and geographic dimensions.

Credible Activity. There is a significant amount of activity and interest across the United States in further developing and sharing information on comprehensive key indicator systems that could contribute to and complement a national system. Moreover, the Key National Indicators Initiative is currently in the process of planning a national comprehensive key indicator system for the United States.

Observations and Next Steps: Congress and the Nation Have Options to Consider in Taking Further Action

The United States confronts profound challenges resulting from a variety of factors, including changing security threats, dramatic shifts in demographic patterns, increasing globalization, and the accelerating pace of technological change. Addressing these challenges will likely depend on information resources that better portray a broad picture of society and its interrelationships.

However, in light of the United States's large supply of topical indicators, a natural question is: If the nation has so much information on so many issues, why does it need a comprehensive key indicator system? One answer to this question is that having information on all the parts—while important and necessary—is not a substitute for looking at the whole, whether in life, business, science, or governance and politics.

A National Indicator System for the United States Merits Serious Discussion

It appears feasible to create a comprehensive key indicator system for the nation that provides independent, objective, and usable information on the nation's position and progress. If designed and executed well, a national comprehensive key indicator system could have wide impact—that is, if American citizens, leaders, and institutions pay attention to it, access it, and use it to inform their personal and professional choices. Alternatively, if it is poorly planned and implemented, the effort could absorb scarce time and resources, fail to meet expectations, and might even make it more difficult to create such a system in the future.

The potential positive benefits of a U.S. comprehensive key indicator system could include the ability to

- highlight areas in which progress has been made in improving people's living conditions as well as areas needing new or higher levels of public attention;
- connect debates about the relative merits of competing demands with reliable indicators to help make choices among competing priorities and direct resources where they have the most impact;

- provide information about the possible impact of particular interventions and policies, thereby providing greater accountability and learning;
- facilitate comparisons within the United States or of the nation as a whole with other countries;
- accelerate the identification of important gaps in the nation's knowledge about important issues and populations;
- enhance fact-based consensus on issues and aspirations, thereby devoting more time, energy, and resources to discussing priorities and effective solutions;
- provide more people and institutions with an accessible "window" into the nation's critical sources of information, thereby increasing the return on the large investments that have already been made to collect it; and
- at the federal level, inform a much-needed re-examination of the base of existing programs, politics, functions, and activities as well as the mandated creation of a governmentwide performance plan.

However, there are some pitfalls that a key national indicator system would need to avoid. First, because there are some areas where indicators or data may not exist (e.g., certain aspects of the environment) or are difficult to measure (e.g., certain aspects of culture), a key U.S. indicator set could have an implicit bias towards areas with existing measures. It will be important for the nation to focus on what it needs to measure, not just on what it currently measures. Second, poor indicator selection or lack of attention to data quality, in the context of such a highly visible system, raises the risk in terms of possible misinformation or unintended consequences arising from use of the system. Finally, exploring a broad number of creative solutions to the problem of how to better inform the nation—including the possibility of competing efforts—may help to encourage faster or more robust development. A single system, if not designed to be open and innovative and implemented in such a fashion, could restrain innovation.

Comprehensive Key Indicator Systems Could Help Better Inform the Nation at Many Levels

One distinguishing characteristic of the United States is unity built out of diversity. This diversity finds its expressions in the multiple levels and branches of government, the different sectors of economic and social

activity, the varied geographic regions, and the widely ranging racial, ethnic, professional, cultural, and other communities of interest. Accordingly, questions about a national system from a local, state, or regional perspective might include the following: Can it provide specific or contextual information, at an appropriate level of disaggregation (e.g., geographic areas or population subgroups) that helps localities, states, and regions become better informed? Alternatively, how could a U.S. national comprehensive key indicator system help subnational jurisdictions better understand themselves in a national context?

A comprehensive key indicator system for the entire United States could be designed in different ways. It could express only national-level indicators (e.g., the average national unemployment rate) and coordinate with subnational levels and others as they develop their own comprehensive key indicator systems with more localized information. Experts GAO talked with made it clear that this is an achievable aim and would add value.

Alternatively, a national system could also include some capability for users to get not only national-level information but also information for geographic areas and demographic subgroups (e.g., unemployment rates for metropolitan areas or school achievement levels for certain population groups). Experts said that, due to availability and comparability issues, limited progress toward such capabilities would be possible in the short term. Much more work must be done to determine how much flexibility in comparison and disaggregation could be built into a single national system over time, versus what would be available in separately managed databases.

Congress Could Choose from a Range of Organizational Options as Starting Points for a U.S. National System

The basic issue for Congress, or any other entity or jurisdiction considering a comprehensive key indicator system, concerns who is to develop, implement, and manage the system. It is important to note that the specific organizational option Congress or any other decision maker chooses as a starting point may be less important than ensuring that it incorporates the nine key design features presented in this report.

GAO identified three basic organizational options for a U.S. comprehensive key indicator system. Each option would allow for incorporation of all or most of the nine design features but to varying degrees: (A) a public organization, (B) a private organization, or (C) a combination public-private organization. There are advantages and disadvantages to each option.

Regardless of which option is chosen, the organization would need to involve public and private individuals and institutions. Assessing the position and progress of a market-oriented democracy like the United States would benefit from aggregating both publicly and privately produced information for two reasons. First, private sector providers produce much useful information (e.g., attitudinal data on consumer confidence). Second, much of the information collected by federal agencies is tied directly to functional or programmatic purposes and, therefore, is generally focused on areas where the government has traditionally played a role. As a result, the federal government's statistical programs could be supplemented with information collected by others as the nation evolves and attempts to meet emerging challenges in new ways. In addition, public and private institutions, individuals, and a wide variety of groups have an interest in being engaged in a national comprehensive key indicator system so that it will meet their needs. Finally, public sector institutions that currently provide indicators rely heavily on data collected from private individuals or institutions. All of them have an interest in seeing more available and accessible information in return for their time, expense, and energy.

Option A: A Public Organization

A national comprehensive key indicator system could be led by a federal agency or a component of a larger agency or department. This option would entail operating as either (1) a new organization within an existing agency, (2) a completely new agency, or (3) an added responsibility in the mission and activities of an existing agency. In terms of advantages, a public organization could build upon the vast institutional capacity and skills within the federal government. Difficulties involved in mixing official and unofficial statistical information would be a disadvantage for a public organization. It could also be constrained by federal management and human capital policies. The U.S. Census Bureau illustrates some of the main features of a publicly led option. It is one of the main federal statistical agencies, with an extensive statistical infrastructure and skill base. As such, it provides an example of a potentially viable option for housing a national system in an existing agency.

Option B: A Private Organization

Another option would be to identify or charter a private organization to develop and implement a national system. A private, non-profit organization would be better suited than a for-profit organization to develop a widely accessible, independent system. A common type of congressionally chartered organization that would be an appropriate venue for a national system is the federal Title 36 corporation. It provides some degree of prestige and indirect financial benefits in that it can receive federal funding, along with private gifts and bequests. Federal supervision of such organizations is very limited as these organizations are set apart from the executive and legislative branches. In terms of advantages, a private organization would be more adaptable and have flexibility in soliciting donations from a range of sources and developing its management and human capital policies. A disadvantage is that a private organization would be disconnected from political appropriations and authorization processes, possibly making it more difficult to encourage policymakers to accept and use the indicator system. The National Academy of Sciences (NAS) is an example of a Title 36 organization chartered by Congress. NAS is noted for its reputation of providing independent, scientific information to the nation, and provides an example of a potentially viable option to house a national system in a private organization.

Option C: A Public-Private Organization

Under the third option of a public-private organization, Congress would have a great deal of flexibility in designing a unique organization and selecting from a range of possible features. Congress would need to decide which existing laws, such as the Privacy Act, should apply. Advantages would include the opportunity to build on the capabilities of the federal government while retaining the ability to more easily adapt to changing circumstances. The mix of public and private interests could also help balance the critical need for independence with important connections to the political process. Of course, public-private organizations are not immune to political pressures and would need to build institutional processes and a culture focused on quality and independence. Further, some risks that the organization would overlap or compete with existing federal functions are possible even if the organization is carefully structured. In designing a public-private organization, various entities serve as possible models, including the Smithsonian Institution (although it is not a viable option to house such a system). The Smithsonian Institution is a hybrid organization that is publicly supported and privately endowed, illustrating the degree of flexibility Congress would have in establishing a public-private partnership to house a national system.

Choosing a New or Existing Organization Carries Certain Advantages and Disadvantages

Unlike existing organizations, the most significant disadvantage for a new organization is the difficulty of incubating it—that is, getting it off to a successful start. The challenges of funding, establishing networks internally and with key external communities, new operating policies and procedures, and human capital issues are all more difficult in a start-up

situation. In addition, it is more difficult to build awareness, trust, and credibility. However, a new organization also provides the opportunity to make a fresh start and design an organization that suits the key design features and enhances the likelihood that it will become a long-lasting, well-used indicator system.

A New Public-Private Organization Could Offer Greater Flexibility to Apply Design Features

A new public-private organization could facilitate collaboration among a variety of communities and combine the best features of federal support and engagement. Congress could incorporate flexibilities by selectively determining which federal management and human capital policies would apply to the organization. A public-private organization could solicit both public and private funds, or it could be designed to coordinate the separate actions of a few leading public and private institutions. Most of the experts GAO interviewed believed that a public-private partnership would probably be the best venue for a national system. However, comprehensive key indicator systems could begin by being housed in any of the three organizational options discussed in this report. GAO found no significant reason why any option should be ruled out, especially as a starting point.

From a broader national perspective, other jurisdictions throughout the United States that are considering development of a comprehensive key indicator system have similar options from which to choose. Unique aspects and applications of local, state, and national laws, culture, economic conditions, and considerations about existing organizations and operations will affect which organizational option is best suited for a particular jurisdiction. GAO's work revealed that lasting comprehensive key indicator systems existed in a range of organizational formats in jurisdictions throughout the United States, from strictly public systems, such as the Oregon Benchmarks, to those housed in private, nonprofit organizations, such as Chicago 2020.

Next Steps for Congress and the Nation

In addition to Congress and the executive branch at the federal level, there are many providers and users of information in thousands of jurisdictions who could benefit from the findings in this report. Accordingly, GAO's suggested next steps are addressed to a broad audience around the nation.

Encourage Awareness and Education

Expanding efforts to make leaders, professionals, and the public more aware of comprehensive key indicator systems and their implications could enhance discussions and enrich considerations about their significance and potential application. Specific actions could include conducting briefings, workshops, or media events; convening forums or conferences; or holding congressional hearings.

Pursue Additional Research

As it is becoming more feasible for jurisdictions to create such systems, more research should be encouraged. Research conducted thus far on these systems has shown that many questions remain, such as how much time, money, and effort are required to create them and are they worth it? A common research agenda, developed among interested parties, would be of value. Learning more about large-scale systems, such as those in other nations, would help inform the development of a possible U.S. national comprehensive key indicator system.

Support Further Development of Comprehensive Key Indicator Systems

A high degree of innovation is taking place at local levels, which can help in building the nation's body of experience and inform considerations at the state and national levels. One way to enhance the improvement of existing systems and increase the probability of successful new ones would be to institutionalize a national network of practitioners and experts. The regular exchange of knowledge in such a community of practice could reduce risks, expand opportunities, and avoid reinventing solutions by leveraging accumulated expertise.

Widen the Dialogue on Options for a U.S. National System

It is important to initiate a broader dialogue on the possible development of a national comprehensive key indicator system that would include Congress, the administration, other levels of government, and different sectors of society. Such a dialogue should explore potential benefits, costs, risks, and opportunities involved. Engaging interested parties across the nation would help ensure collaboration across boundaries, leverage existing information assets, build on existing knowledge and experience,

and position the nation to make choices about whether and how to develop a national comprehensive key indicator system for the United States.

Introduction

Difficult decisions related to societal aims, such as improving health care, enhancing security, or sustaining the environment require reliable, unbiased, and useful indicators that are readily accessible to citizens, the media, advocates, businesses, policymakers, nonprofit leaders, researchers, and other audiences. While in many ways such information about the world is more available today than ever before, too often it is in diverse formats and locations that may make it difficult to locate and use effectively and to provide a general picture of a jurisdiction's position and progress. In addition, it is not easy to ensure that the most relevant and important information is accessible, recognized, and used by a wide variety of people and institutions. As a result, public and private decision making about issues and solutions may be based on information that is limited, fragmented, and incomplete.

One example where progress has been made is a single entry point for federal statistical data (http://www.fedstats.gov), which gives access to statistics from over 100 federal agencies, available by both state and topical area. It is a valuable resource for professionals and those who need information on a specific topic. However, the site does not provide access to a limited number of indicators that have been agreed upon as important for understanding and assessing the position and progress of the United States. Further, it is not designed to allow a user to easily assemble indicators in multiple topical areas at the same time, navigate easily through different areas, or interact with the system for different purposes (e.g., producing a report). Because the site links directly to agency Web sites, a wide variety of formats exist and users must also navigate within each agency's site to find desired information.

The nation's challenges at all levels demand new and more cross-sector, cross-border responses involving many different individual and institutional participants in U.S. society. These responses, in turn, depend on more integrated information resources to support informed public debate and decisions within and between different levels of government and society. For example, individuals and institutions play multiple roles in life (i.e., resident in a particular neighborhood and borough in New York City, resident of the city itself, resident of the State of New York, and citizen of the United States), illustrating one reason why the interrelationships between indicator systems are important.

Looking at the parts of a society is no substitute for viewing the whole. Along these lines, there are examples of citizens, institutions, and leaders, in both private and public roles and settings, that have comprehensive key indicator systems. Such systems bring together a select set of indicators that provides information conveniently in one place on a broad range of topical areas, such as economic development and employment, air and water quality, and public health and education. We use the term comprehensive to denote systems that include indicators from each of the three following domains: economic, environmental, and social and cultural.[1]

Organizers and users of comprehensive key indicator systems attempt to address questions such as: What are our most significant challenges and opportunities? What are their relative importance and urgency? Are we making optimal choices to allocate scarce public resources, create jobs, stimulate future industries, maintain a global competitive edge, enhance security, sustain environmental health, and promote quality of life considerations? Are our solutions working and compared to what? How do we really know if they are working?

Importantly, indicator systems are oriented toward both public and private choices; individual and institutional perspectives; business, nonprofit, government, and media points of view; and leaders, voters, and employees. Their intent is to improve the availability of quality information for better decision making and problem solving. For example, a small business owner could use such a system to investigate market opportunities in particular geographic areas or among certain demographic groups. A foundation might use the information on the status of children's education, health, and family environment to make decisions about competing grant applications. Policymakers in government might use such information to inform priorities and allocate scarce public resources.

[1] These three domains are widely used in the United States and around the world.

Indicators and Indicator Systems

An indicator is a quantitative measure that describes an economic, environmental, or social and cultural condition. There are many widely known indicators, such as the unemployment rate. Yet, there are many more indicators that are less widely understood but of comparable importance. For example, the number of patent applications or patents granted in a particular industry or jurisdiction[2] is sometimes used to measure the degree of "inventiveness." Such an indicator can be useful to businesses seeking to locate in places with highly educated and creative potential employees. An indicator such as this one could also be useful for assessing relative competitive advantage in research and development.

The indicators related to unemployment and patent applications illustrate another difference between indicators—direct vs. indirect or "proxy" indicators. Experts in the field of statistics emphasize this distinction because it highlights things that are difficult to measure. A direct indicator measures exactly what it says it does—in this case the unemployment rate. In contrast, an indirect indicator, such as the number of patents, cannot directly measure inventiveness. In fact, it may be impossible to measure such a concept directly and it is possible that it could only be approximated through a variety of quantitative proxy measures.

In this report, we define "indicator systems" as systematic efforts to institutionalize the provision of indicators through various products and services to satisfy the needs of targeted audiences. Indicator systems measure many things, including attributes of people, institutions, industries, and the physical environment, among others. In terms of management and ownership, many topical indicator systems in the United States are primarily public in character, such as the National Income and Product Accounts maintained by the Bureau of Economic Analysis. Others are privately led, such as the Institute for Survey Research at the University of Michigan, which produces consumer confidence indicators.

Indicators are based on data collected from *suppliers* (e.g., individuals and institutions that fill out surveys or census forms), which can then be designed and packaged into products and services by *providers* (e.g., the Bureau of Labor Statistics or the Conference Board) for the benefit of

[2] We are using the term "jurisdiction" in this report in the broadest sense—it could be a neighborhood or community, a state or local government, a region, or a nation. Therefore, a jurisdiction could be defined by political or geographical boundaries.

various *users* (e.g., leaders, researchers, planners, or voters). Audiences can use the information packaged in an indicator system for a variety of reasons: to stimulate awareness, increase understanding, frame points of view on issues, plan strategically, assess progress, or make choices.

Indicator systems also vary to the degree that they focus on (1) detailed account structures (e.g., the U.S. National Income and Product Accounts); (2) portfolios of individual indicators; (3) single composite indices that are constructed out of many individual indicators (e.g., the U.S. Index of Leading Economic Indicators); or (4) some combination of the above.

Further, indicators are only one part of the base of knowledge and information necessary to inform a nation. They are important for summarizing, highlighting, and synthesizing what can sometimes be complex and bewildering information for many audiences. However, they must be supported by more extensive databases to support analysts who want to probe into a deeper understanding of the reasons for movements in certain indicators.

Topical and Comprehensive Key Indicator Systems

It is useful to distinguish between two types of indicator systems: topical and comprehensive. "Topical indicator systems" consist of indicators pertaining to a related set of issues, such as health, water quality, education, science, technology, or transportation. For example, a topical system in health might have related indicators like the prevalence of certain diseases, such as cancer or heart disease; levels of certain risk behaviors, such as cigarette smoking or drug use; the number of citizens with access to health insurance; and the number of doctors or hospitals available for use by citizens in a particular jurisdiction. Topical indicator systems exist at different geographical levels, including local, state, regional, national, and supranational. They are a major source of information for the media, professionals, researchers, citizens, and policymakers.

In contrast with topical systems, comprehensive key indicator systems aggregate key economic, environmental, and social and cultural indicators into a single system that disseminates information products and services. Comprehensive key indicator systems are built selectively by members of a jurisdiction from the foundation of many existing topical indicators. Indicator systems have an institutional foundation to sustain and improve them over time. Comprehensive key indicator systems can make it easier to see a more complete, general picture of the position and progress of a

particular jurisdiction without requiring the review of exhaustive detail. These comprehensive systems also facilitate analysis and our understanding of how changes in one domain can affect other domains. For example, public health (which would be included in the social and cultural domain) may also be affected by both economic and environmental factors.

Selecting the key aspects or activities of a society that are most important to measure is a challenge for comprehensive key indicator systems. Citizens of any jurisdiction view the world differently based on their culture, geography, aspirations, values, and beliefs, among other factors. Diverse perspectives and value judgments significantly affect indicator choices and definitions, which are inherently subjective. For example, poverty is a characteristic of society that is frequently monitored, and it can be defined and measured in a number of ways. The proportion of the population that is low income can be selected as one indicator of poverty, which frames it in financial terms. However, other possible indicators, based on nonfinancial factors like physical, psychological and spiritual well-being and education levels, also could be considered as broader indicators of poverty.

Focus of U.S. National Topical Systems on Specific Issues

The United States has national-level indicator systems in a variety of topical areas, most of which are supported by the federal statistical system. Because of the natural interrelationship between topical and comprehensive systems, GAO included five U.S. national topical systems in our study to provide context, including (1) the Conference Board's Business Cycle Indicators,[3] (2) the National Science Foundation's Science and Engineering Indicators, (3) the Department of Health and Human Services' Healthy People, (4) the Federal Interagency Forum on Child and Family Statistics' America's Children: Key National Indicators of Well-being, and (5) the Federal Interagency Forum on Aging-Related Statistics' Older Americans: Key Indicators of Well-being. (See app. I for further details on these systems.) These systems and others provide a foundation for a national comprehensive key indicator system as well as lessons learned that would be useful in developing it. Accordingly, it is important to note the common elements exhibited as part of the development and implementation of these topical indicator systems.[4] These systems have

- originated in response to certain national challenges or concerns,
- evolved over time by expanding their scope and refocusing their activities,
- been used in a variety of ways by the public and private sectors,
- relied heavily upon indicators from the federal statistical system,
- spurred the development of new or different indicators, and
- enhanced approaches for collecting data.

[3] The Conference Board is a nonprofit organization that creates and disseminates knowledge about management and the marketplace. It works as a global, independent membership organization in the public interest.

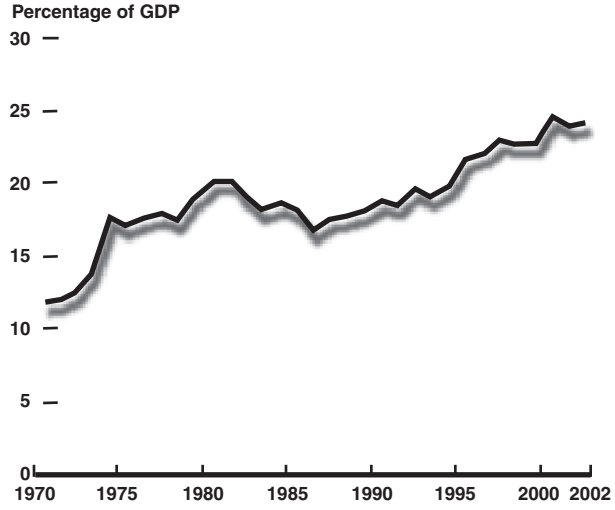
[4] Other indicator systems exist in each of the three domains. We did not focus on environmental indicator systems because another forthcoming GAO product will focus on this domain.

Economic, Environmental, and Social and Cultural Domains

The topical indicator systems we examined fell into either the economic, environmental, or social and cultural domain. For example, at the national level in the United States, the annual *Economic Report of the President* covers several topical areas within the economic domain, such as business, markets, finance, and employment.[5] The environmental domain includes areas such as natural resources and ecosystems. The social and cultural domain includes topical areas such as education and health care.

The following three figures illustrate some indicators that fall under each domain. First, to illustrate the economic domain, one measure of growing worldwide interdependence is the total share of world goods and services that is traded. As shown in figure 2, from 1970 through 2002, world exports increased from about 12 percent to 24 percent of world gross domestic product (GDP). Hence, all over the world, people are depending more and more on other nations to consume the goods they produce and to produce the goods they, in turn, consume.

Figure 2: An Economic Indicator Showing World Exports of Goods and Services as a Percentage of World GDP, 1970-2002



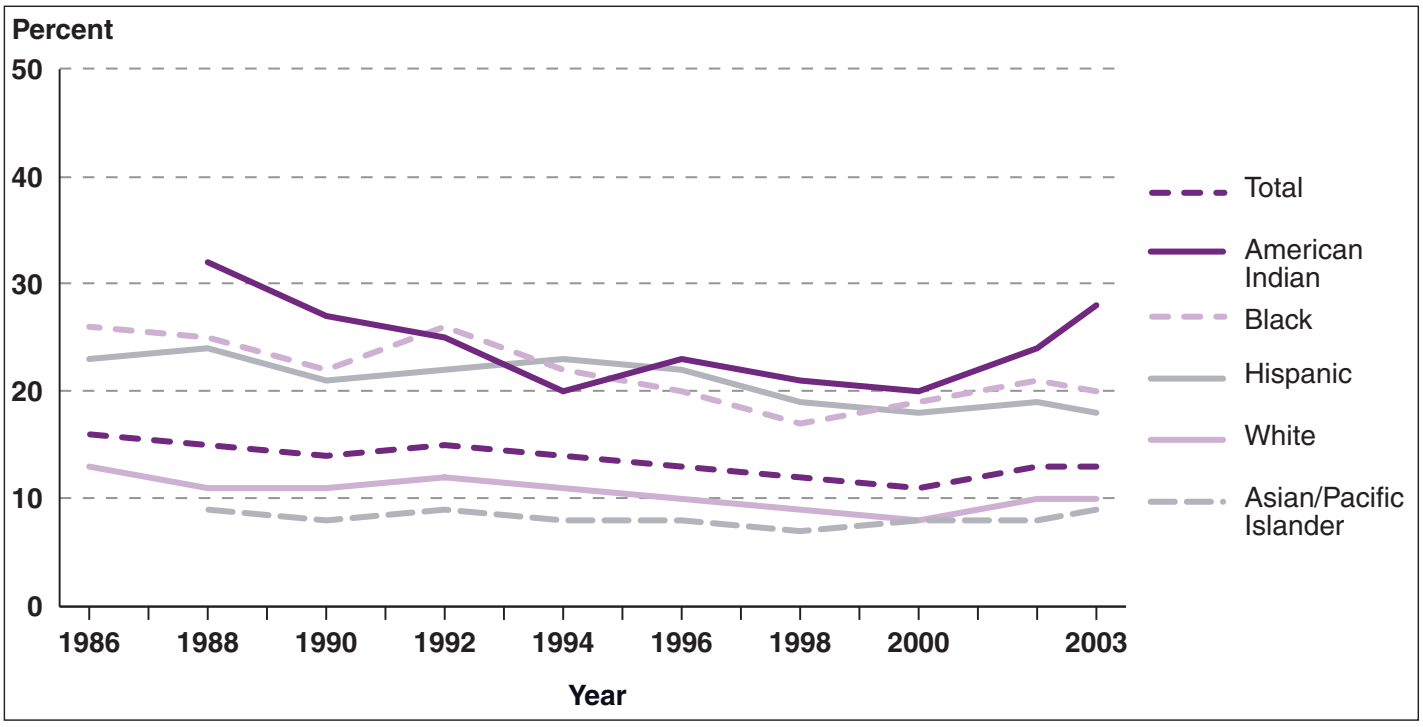
Source: GAO Strategic Plan, 2004-2009.

Note: Calculated from International Monetary Fund data.

[5] Council of Economic Advisers/Executive Office of the President, *Economic Report of the President* (Washington, D.C.: February 2004).

To illustrate an indicator in the social and cultural domain, one indicator of the status of youth in the United States is a measure of the percentage of persons ages 16 to 24 who are neither enrolled in school nor working, as shown in figure 3. This indicator provides information on a transition period for youth when most are finishing their education and joining the workforce, a critical period for young people as they are achieving their educational goals and choosing their career paths. A breakdown of the data by race and ethnic group shows that the percentage of youth that fall into this category of neither being in school nor working has been consistently higher for American Indian, Black, and Hispanic youths than for White and Asian/Pacific Islander youths since 1986.

Figure 3: A Social and Cultural Indicator Showing the Percentage of Persons Ages 16-24 Who Were Neither Enrolled in School Nor Working, by Race/Ethnicity (Selected Years 1986-2003)

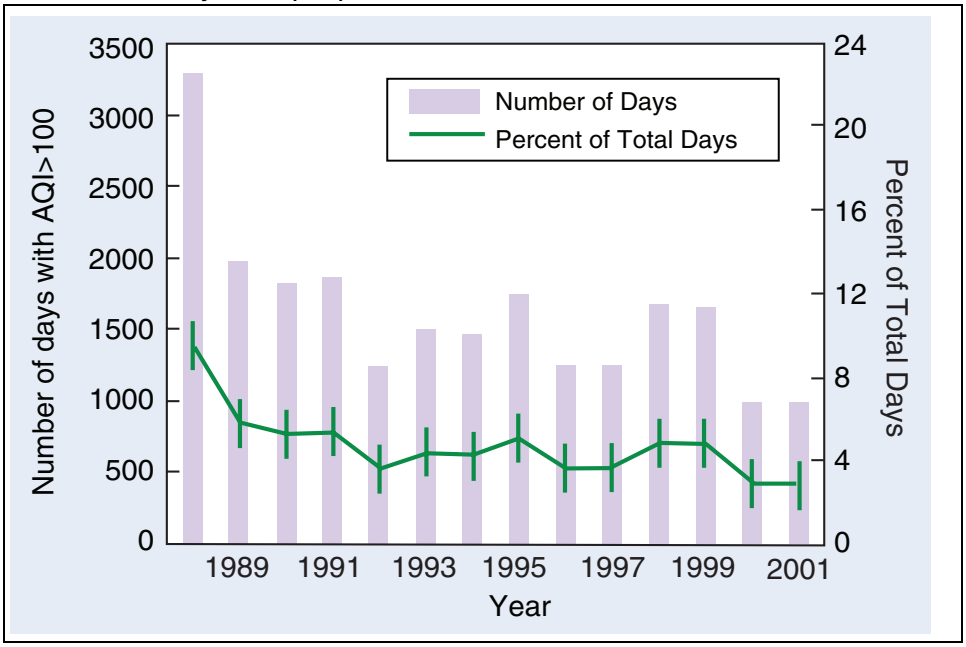


Source: U.S. Department of Commerce, U.S. Census Bureau.

Note: Data from Current Population Survey, March Supplement, selected years 1986-2003, previously unpublished tabulation December 2003.

As an example from the environmental domain, in 2003 the Environmental Protection Agency (EPA) published a *Draft Report on the Environment 2003* that covered topical areas in this domain, such as air, land, and water.[6] The air quality index, for example, is used for daily reporting of air quality as related to ozone, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide. The higher the index, the poorer the air quality. When air quality index values are higher than 100, the air quality is deemed unhealthy for certain sensitive groups of people. Based on EPA's air quality index data, the percentage of days across the country on which air quality exceeded 100 dropped from almost 10 percent in 1988 to 3 percent in 2001, as shown in figure 4.

Figure 4: An Environmental Indicator Showing the Number and Percentage of Days with an Air Quality Index (AQI) Greater Than 100, 1988-2001



Source: EPA.

Note: Data used to create graphic are drawn from EPA, Office of Air Quality Planning and Standards. *National Air Quality and Emissions Trends Report*, 1997. Table A-15. December 1998; EPA, Office of Air Quality Planning and Standards; Air Trends: Metropolitan areas trends, Table A-17, 2001; (February 25, 2003; http://www.epa.gov/airtrends/metro.html).

[6] Environmental Protection Agency, *Draft Report on the Environment 2003* (Washington, D.C.: 2003).

Significant national-level research has been conducted on topical systems. For example, the National Academies, which brings together committees of experts in areas of scientific and technological endeavor to address critical national issues and advise the federal government and the public, has conducted extensive research on indicator systems in the United States and around the world. Specifically, the Academies has done work in response to several requests from federal agencies over the past 15 years to develop, evaluate, or propose statistics or select indicators in fields such as the economy, health, education, families, the environment, transportation, science, and technology.

Some indicators, however, can be considered under more than one of the three domains. The number of housing starts, for example, could be considered under the economic domain, but housing availability also affects the social and cultural domain, which includes aspects of quality of life. The health effects resulting from various environmental conditions provide another example where the distinction between different domains blurs. A wider perspective is also crucial in the area of health care, which involves economic as well as social and cultural indicators. For example, participants in a recent GAO forum on health care observed that, although a nation's wealth is the principal driver of health care spending, that wealth alone does not explain the high level of spending in the United States.[7] These interrelationships point to one of the strengths of comprehensive key indicator systems—they provide a tool to bring information together more easily on an ongoing basis. This means they are especially suitable for assessing increasingly complex, crosscutting issues that are affected by a wide range of factors.

Comprehensive Systems' Broad Focus on Position and Progress across All Three Domains

A *comprehensive key indicator system* can be defined more specifically as shown below.

- **Comprehensive**—Contains information from the three main domains: economic, environmental, and social and cultural (note that crosscutting categories such as sustainability do not fit neatly into one domain). It is comprehensive in the sense that it provides broad coverage across the three domains.

[7] GAO, *Highlights of a GAO Forum: Health Care: Unsustainable Trends Necessitate Comprehensive and Fundamental Reforms to Control Spending and Improve Value*, GAO-04-793SP (Washington, D.C.: May 2004).

- **Key**—A core set of information that a group of citizens has selected from a much larger range of possibilities. There is no "right" number of key indicators. How jurisdictions strike the balance between simplicity and effective coverage can differ widely. An indicator set can include a few to hundreds of indicators, but it is not intended to be exhaustive. Because these are a select set, they cannot provide a full description of the position and progress of a jurisdiction but rather focus on providing a generally accurate picture of the whole.

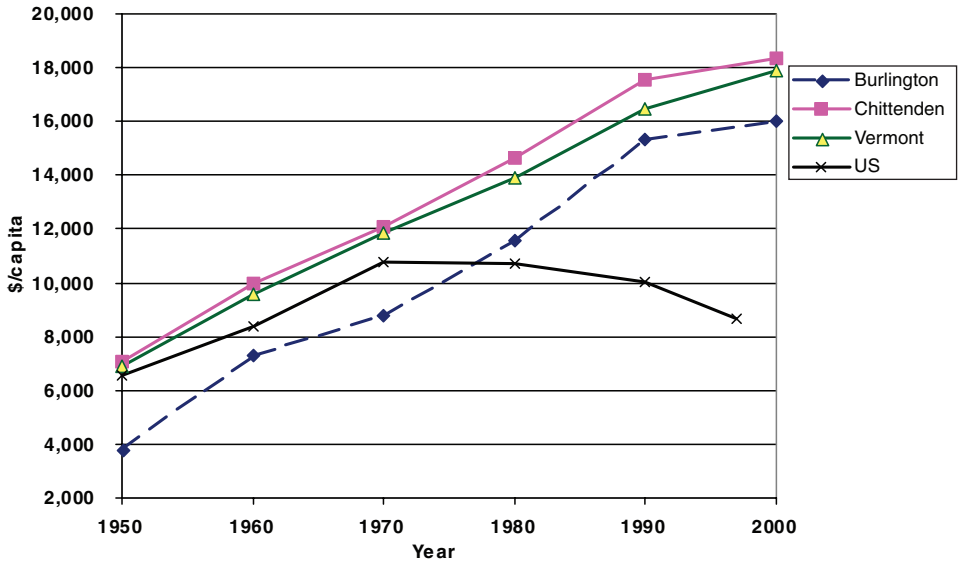
- **Indicator**— Description of an economic, environmental, or social and cultural condition over time. These indicators can be but are not necessarily tied directly to goals or formulated as objectives, or have specific performance targets associated with them.

- **System**—The products, services, people, processes, and technologies involved in an organizational form to sustain and adapt the set of indicators. This refers to a larger set of civic, scientific, technical, and other processes that involve suppliers (of data), providers (of indicators), or users (of information).

Although comprehensive key indicator systems are functioning in the United States at the community, local, state, and regional levels, limited research appears to have been conducted with comprehensive key indicator systems themselves as the focus of analysis. Appendix VII provides a bibliography of some of the existing literature related to topical and comprehensive key indicator systems.

Figure 1 shown earlier in the summary section of this report illustrates how a comprehensive key indicator system might integrate information from the three domains into a single conceptual framework. Note that this framework also allows for crosscutting indicators that do not easily fit into one of the three domains. Some comprehensive key indicator systems are based primarily on broad, crosscutting conceptual areas, such as quality of life or sustainable development. An example of an indicator system that is tracking quality of life is the Burlington Legacy Project of Burlington, Vermont. The Burlington Legacy Project has calculated a single index of quality of life—referred to as the genuine progress indicator (GPI) index, which is a composite of 26 economic, environmental, and social and cultural indicators. Figure 5 shows the GPI calculated for Burlington, Vermont; Chittenden County, Vermont; the State of Vermont; and the United States.

Figure 5: GPI Per Capita for Burlington, Vermont; Chittenden County, Vermont; the State of Vermont; and the United States, 1950-2000



Sources: Burlington Legacy Project.

Note: See also Costanza, et al., "Estimates of the Genuine Progress Indicator (GPI) for Vermont, Chittenden County, and Burlington, from 1950 to 2000," *Ecological Economics*.

Nations with Comprehensive Key Indicator Systems

A number of countries, including Australia, Canada, and the United Kingdom, have comprehensive key indicator systems at the national level. Some exist at the supranational level, such as the European Union's (EU) European Structural Indicators system.[8] Although we did not study the Canadian and Australian systems as part of this review, they nonetheless illustrate how national comprehensive key indicator systems can be organized.

[8] In preparation for its World Indicators Forum in November 2004, the OECD is developing a "Knowledge Base on National and International Experiences" of existing and developing national systems in the 30 OECD member nations, and others like Brazil, China, and India.

Canada's Treasury Board maintains an annually updated comprehensive key indicator system consisting of 20 indicators intended to reflect a balance of economic, environmental, and social and cultural conditions.[9] This system provides a snapshot of where Canada stands in comparison with other countries. The Treasury Board's indicator system complements government departmental reports by giving Canadians a broad perspective on national performance, providing a context for assessing the performance of government programs, and reporting on basic information to support dialogue among Canadians about future directions in public policy. The Board grouped indicators into the following four themes.

- **Economic opportunities and innovation**—real gross domestic product per capita, real disposable income per capita, innovation, employment, literacy and educational attainment.
- **Health**—life expectancy, self-rated health status, infant mortality and healthy lifestyles.
- **Environment**—climate change, air quality, water quality, biodiversity, and toxic substances and the environment.
- **Strength and safety of communities**—volunteerism, attitudes toward diversity, cultural participation, political participation, and safety and security.

Australia's comprehensive system—*Measures of Australia's Progress*—is organized around four dimensions of progress with associated topical areas. System organizers selected a variety of indicators to measure progress in each of the topical areas. The dimensions and associated topical areas for the 2004 report are as follows.[10]

- **Individuals**—health, education and training, and work.

[9] The most recent report is *Canada's Performance 2003*. For more information, see http://www.tbs-sct.gc.ca/report/govrev/03/cp-rc1_e.asp#_Toc54511340. Updated reports are issued annually.

[10] The most recent report—*Measures of Australia's Progress 2004*—was issued in April 2004. For more information, see http://www.abs.gov.au/Ausstats/abs@.nsf/0/398ab89dbd6cba6fca256e7d00002636?OpenDocument.

- **Economy and economic resources**—national income, financial hardship, national wealth, housing, and productivity.
- **Environment**—the natural landscape, the human environment, oceans and estuaries, and international environmental concerns.
- **Living together**—family, community, and social cohesion; crime; and democracy, governance, and citizenship.

An Illustrative History of National Efforts in the United States

A consistent message from the many experts and practitioners engaged in this field has been to look at indicator systems from a historical perspective. This is not only because such systems typically have evolved over long periods, but also because some understanding of the evolution of how U.S. citizens and organizations inform themselves provides a basic foundation for describing comprehensive key indicator systems. This history is intended to emphasize a few critical ideas. First, our substantial information assets have evolved as the nation confronted great problems or questions and needed to know more. Second, the topical areas that resulted are the essential foundation for how the nation informs itself. Third, since early in the 20th century, many observers have recognized the potential value of a more comprehensive, objective view of the United States. But it is only now, for a variety of reasons, becoming potentially feasible to plan, design, and implement such a resource.

National Challenges and Concerns Led to the Creation of Topical Area Indicator Systems, Which Have Evolved Over Time

The indicators required to inform our nation have developed over time in response to important issues and opportunities. As national-level indicators developed in the economic, environmental, and social and cultural domains, each evolved with its own history and traditions. The call for economic indicators grew out of the nation's experiences during the Great Depression. Social upheavals after World War II and the Great Society in the 1960s helped spark a desire for social and cultural information. Scientific studies that raised concerns about society's impact on the environment pointed to a need for more information on environmental conditions. Substantial information assets now exist in these topical areas—providing a foundation consisting of thousands of indicators—on which we all depend for decision making.

The U.S. federal statistical system includes indicators on many specific topics and consists of numerous agencies and programs, each established separately in response to different needs. The Office of Management and Budget (OMB) has identified 70 federal agencies that each spends at least $500,000 annually on statistical activities.[11] The U.S. federal statistical system is looked to as a worldwide leader in terms of the sheer volume, scope, and experience in developing and refining information sets in particular domains and topical areas. Together, the output of these agencies constitutes the federal statistical system. Ten of these agencies are considered by OMB to be the principal statistical agencies because they collect, produce, and disseminate statistical information as their primary missions, while the other agencies that produce and disseminate statistical data do so as an ancillary part of their missions. Table 2 provides a list of topical areas selected to illustrate the variety of subjects covered by the federal statistical system.[12]

Table 2: Selected Topical Areas Covered by Federal Statistical Programs

• Agriculture	• Children and families
• Food and nutrition	• Homeland security
• Natural resources	• Housing
• Education	• Crime and Justice
• Health	• Employment
• International trade	• Job training
• Patents and trademarks	• Transportation
• Energy	• Science and technology
• Occupational safety and health	• Small business
• Aging	• Urban development

Source: Office of Management and Budget.

[11] According to OMB estimates, funding for federal statistical agencies that collect and disseminate information, including many indicators in nearly every topical area, amounted to over $4.7 billion for fiscal year 2004.

[12] See Office of Management and Budget, *Statistical Programs of the United States Government, Fiscal Year 2004* (Washington, D.C.: 2003).

Table 3 provides selected highlights of indicator traditions in the economic, environmental, and social and cultural domains. These highlights demonstrate three recognizable traditions in the development of the United States' indicator systems that continue today but are now being complemented by the development and evolution of comprehensive systems. These national topical area indicator systems have evolved in response to needs for new or different types of information, new challenges, and shifting issues and priorities. They reflect an investment of billions of dollars to create, maintain, and revise.

Table 3: Selected Highlights of Indicator Traditions in the United States

Tradition/ domain	Illustrative examples
Economic indicators	National Income and Product Accounts were initially formulated to account for the flow of commodities and services during World War II. They provide a base for key economic indicators such as gross domestic product.
	Business Cycle Indicators were created in the 1930s by the National Bureau of Economic Research and have been compiled by the Conference Board since 1995. They were first compiled by the U.S. Census Bureau for government agency use from 1961 to 1968 and then for public use from 1968 to 1972; the Bureau of Economic Analysis compiled them from 1972 to 1995. The Conference Board determines the specific data series included in the composite leading, coincident, and lagging indicators, such as stock prices, employment, and change in consumer prices for services respectively.
	The Employment Act of 1946[a] committed the federal government to the goals of full employment and economic stability. The act created the Council of Economic Advisors, which released the first *Economic Report of the President* in 1947. The Council continues to publish it to this day.

(Continued From Previous Page)

Tradition/ domain	Illustrative examples
Social and cultural indicators	The Department of Labor, Children's Bureau's *Handbook of Federal Statistics on Children*,[b] published in 1913, attempted to bring together "scattered" federal data and other information on children's welfare. The handbook was an early effort to develop indicators for consistent monitoring of children and health.
	A proposed bill called the Full Opportunity and Social Accounting Act[c] was first introduced in 1967. Although the bill was never passed, it called for an annual social report from the President to Congress and helped focus a national dialogue on social indicators.
	In 1969, the Department of Health, Education and Welfare published a report on social and cultural indicators called *Toward a Social Report*.[d] The report was prepared at the direction of President Johnson who sought "ways to improve the nation's ability to chart its social progress." In 1973, federal statistical agencies published a report on social indicators. Subsequent reports on social indicators were published in 1976 and 1980.
Environmental indicators	The National Environmental Policy Act (NEPA),[e] signed into law on January 1, 1970, requires federal agencies to assess the impacts of their decisions on the natural environment. While NEPA did not establish any specific indicators, it does require that federal agencies assess major federal actions significantly affecting the environment. NEPA also established the Council on Environmental Quality to advise the President on environmental matters.
	During the same year, EPA was created as an independent agency to establish and enforce federal air standards and water pollution control laws and to monitor the environment. The Clean Air Act of 1970[f] also was passed. These initiatives focused national attention on indicators of environmental quality.
	The Endangered Species Act of 1973[g] suggests indicators of species viability, such as size and geographical distribution of species' populations and their habitats. These indicators can be used as the basis for avoiding the extinction of species.

Source: GAO.

[a]Pub. L. No. 79-304, 60 Stat. 23 (1946).

[b]Department of Labor, Children's Bureau, *Handbook of Federal Statistics on Children* (Washington, D.C.: Government Printing Office, 1913).

[c]90th Congress, S-843.

[d]Department of Health, Education, and Welfare, *Toward a Social Report* (Washington, D.C.: 1969).

[e]42 U.S.C. §§ 4321–4370f.

[f]42 U.S.C. §§ 7401–7671q.

[g]16 U.S.C. §§ 1531–1544.

Economic Indicator Systems

As the Great Depression deepened in the 1930s, the United States established mechanisms to improve the collection of indicators on particular economic and social and cultural conditions, including national surveys on labor and health issues. During the 1940s and early 1950s, efforts increasingly focused on economic monitoring and reporting. Key economic indicators, such as the National Income and Product Accounts, became regularly reported and widely referenced by policymakers, the business community, researchers, and the public.[13] The United States has been refining these indicators since the 1930s, and work continues to this day. For example, our 1997 report on the consumer price index (CPI) identified more frequent updating of market basket expenditures weights as a way to significantly improve the accuracy of the index and have a positive impact on the federal budget deficit.[14] Based on this and other reports, the Bureau of Labor Statistics has made important improvements in the CPI methodology, including more frequent updating of the market basket.

An example of a specific topical area within the economic domain is the Business Cycle Indicators system that is currently maintained by the Conference Board. It consists of three sets of composite leading, coincident, and lagging indexes—and is a well-known tool for forecasting economic activity.[15] The continuity of the system has been critical for achieving a high level of attention from national and business leaders.

Like most other U.S. economic indicators, the Business Cycle Indicators system had its impetus in the dramatic economic transformations of the Great Depression of the 1930s and World War II and its aftermath. During the Great Depression, leaders were not able to adequately track or forecast

[13] The measurement of incomes earned in the United States was a joint effort by the Department of Commerce and the National Bureau of Economic Research. The Department of Commerce subsequently assumed all the work and provided the first measure of U.S. production during World War II.

[14] GAO, *Consumer Price Index: More Frequent Updating of Market Basket Expenditure Weights Is Needed*, GAO/GGD/OCE-98-2 (Washington, D.C.: Oct. 9, 1997).

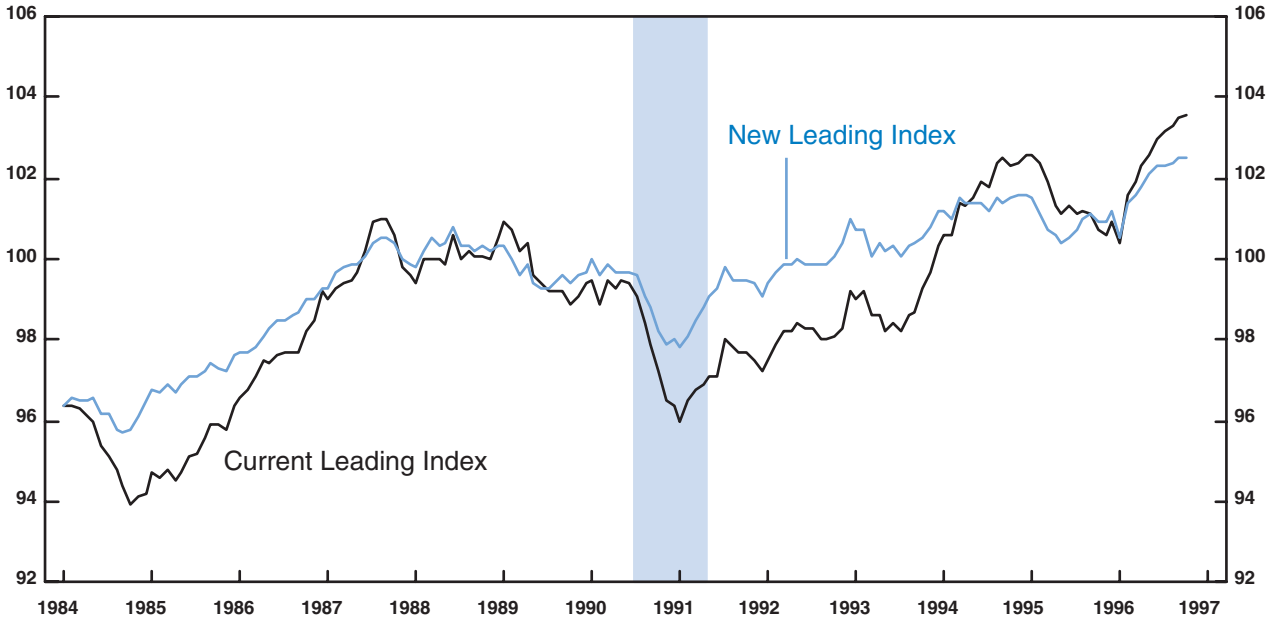
[15] The composite indexes are the key elements in an analytic system designed to signal peaks and troughs in the business cycle. The leading, coincident, and lagging indexes are essentially composite averages of between 4 and 10 individual leading, coincident, or lagging indicators. They are constructed to summarize and reveal common turning point patterns in economic data in a clearer and more convincing manner than any individual component—primarily because a number of indicators taken together as a single index has more information than any one indicator.

changes in the business cycle due to significant gaps in our knowledge of the U.S. economy.

The Business Cycle Indicators system has been developed and refined through public-private interactions over time. Business cycle indexes have been published continuously since 1968, albeit with numerous revisions and substitutions in response to factors like structural changes in the economy due to, for example, increased globalization, and new understandings of how the business cycle unfolds. Initially, work on researching what would become the Business Cycle Indicators came not from the government but from the private sector. Specifically, this work began during the late 1930s at the private, nonprofit National Bureau of Economic Research (NBER). NBER initially helped to identify the most important business issues to measure and the types of indicators needed. By the 1960s, NBER had refined the Business Cycle Indicators and, in 1961 the U.S. Census Bureau began to regularly publish reports based upon the indicators for government agency use. In 1968, the U.S. Census Bureau began publishing a report on the Business Cycle Indicators not just for government agency use, but also for public use and did so through 1972. The Bureau of Economic Analysis then published the indicators from 1972 to 1995, although the program was scaled back over time. The reports also included a sizeable chartbook containing underlying economic data, which was eventually eliminated. By 1995, the Business Cycle Indicators had become well established, and the federal government granted the Conference Board exclusive rights to produce the Business Cycle Indicators, which it has done ever since.

Figure 6 illustrates how an indicator system may change over time. This illustration shows how two different versions of the leading index—the old leading index (or "current leading index" in the figure) and the "new leading index" that replaced it in late 1996—predicted different patterns for the U.S. economy. Specifically, figure 6 compares two sets of trends: one based on the original ("current") leading index and the other based on recalculations using a new, revised index. For example, the old ("current") leading index provided a "false signal" of an oncoming recession in 1984, whereas the revised leading index ("new") provided a much more muted signal.

Figure 6: Revisions in the Leading Index of the Business Cycle Indicators, 1984-1997



Source: The Conference Board.

Note: Data from Business Cycle Indicators, vol.1, no. 11, December 1996.

Social and Cultural Indicator Systems

The apparent success of economic indicators in contributing to discussions and decisions about managing economic policy helped spark interest in producing indicators on the social and cultural well-being of the nation and increased institutional support for enhancing the availability of information to support planning and policy making. In the 1960s, some believed that economic indicators alone were not adequate to monitor the dramatic social changes taking place. A heightened focus and debate on social and cultural indicators led certain observers to label this effort as a "social indicators movement"—even though some attempts were made to focus on environmental indicators as well. (See app. II for more information on the social and cultural domain.)

There were some attempts during the 1960s to unite economic indicators with improved social and cultural and environmental indicators in order to provide a comprehensive view of the position and progress of the nation. A first step to enhance social and cultural indicators and report more comprehensively on the position of the nation as a whole occurred in 1962 when the National Aeronautics and Space Administration commissioned the American Academy of Arts and Sciences to explore the potential side effects of space exploration on U.S. society. The resulting *Social Indicators* report, published in 1966, found that adequate information for assessing American life was not as widely available as economic information was. It called for increased collection of social and cultural statistics and recommended the development of a system of national social accounts to help guide policy decisions.[16]

In 1967, several senators proposed legislation calling for the creation of a national system of social accounting and a Council of Social Advisers that was to have been comparable to the Council of Economic Advisers. Hearings were conducted on a proposed bill that would have established an annual social report similar to the *Economic Report of the President*, although the bill did not pass.

In 1969, the Department of Health, Education, and Welfare—now the Department of Health and Human Services—produced an influential publication entitled *Toward a Social Report*. This report was commissioned by presidential directive to "develop the necessary social statistics and indicators to supplement those prepared by the Bureau of Labor Statistics and the Council of Economic Advisers." The report dealt with various environmental and social and cultural concerns of American society, such as health and illness; social mobility; the physical environment; income and poverty; public order and safety; learning, science, and art; citizen participation; and the perceived alienation of certain groups of citizens. The report assessed prevailing conditions on each of these topics, concluded that indicators on social and cultural conditions were lacking, and recommended that the executive branch prepare a comprehensive social report for the nation with emphasis on

[16] Raymond Bauer, ed. *Social Indicators* (Cambridge, Mass.: MIT Press, 1966).

indicators to measure social change that could be used in setting policy and goals.[17]

There were several other developments in the area of social and cultural indicators during the 1970s and 1980s. In 1972, the Social Science Research Council—a non-profit organization—established the Center for Coordination of Research on Social Indicators.

In 1973, 1977, and 1980, the federal government published three reference volumes , entitled *Social Indicators*.[18] These reports presented information on important aspects of the country's social condition along with underlying historical trends and developments. Subject areas included population; the family; health and nutrition; housing; the environment; transportation; public safety; education and training; work; social security and welfare; income and productivity; social mobility and participation; and culture, leisure, and use of time. However, the U.S. government discontinued the *Social Indicators* series after the 1980 volume. Moreover, the Center for Coordination of Research on Social Indicators also closed. Although the absence of these consolidated efforts creates the appearance that the production of literature on social and cultural indicators declined, this is difficult to substantiate. An equally plausible possibility is that it simply dispersed and continued to develop in respective topical areas in academic, governmental, and non-profit settings.

[17] Department of Health, Education, and Welfare, *Toward a Social Report* (Washington, D.C.: 1969).

[18] Office of Management and Budget, Statistical Policy Division, *Social Indicators 1973: Selected Statistics on Social Conditions and Trends in the United States* (Washington, D.C.: 1973); Department of Commerce, *Social Indicators 1976: Selected Data on Social Conditions and Trends in the United States* (Washington, D.C.: 1977); and Department of Commerce, *Social Indicators III: Selected Data on Social Conditions and Trends in the United States* (Washington, D.C.: 1980).

Other developments during the 1970s and 1980s included publication of a number of works on social indicators and the launch of several periodic sample population surveys, such as the General Social Survey and the National Crime Victimization Survey.[19] Research on social and cultural indicators was also under way in other countries and involved some international organizations. For example, building on the work completed in the United States, researchers in Germany continued to develop social indicators. Their work formed the basis for the German System of Social Indicators, which has been in place for 30 years. Additionally, the Organisation for Economic Co-operation and Development (OECD) launched a social indicators program in 1970. This program, with the help of an international network of researchers and national statisticians, developed a model survey and a list of social indicators intended to provide systematic indicators for national and comparative use. OECD's first Programme of Work on Social Indicators was cancelled after the publication of the first (and only) edition of the report, *Living Conditions in OECD Countries* in 1986.[20] OECD began work on its current social indicators project in 1998, which led to the publication of a 2002 report.[21]

Observers have proposed a number of explanations as to why national attempts to create more integrated social and cultural reporting appear to have declined. One factor cited was that western industrial societies experienced an economic crisis in the early 1980s that continued to focus attention on economic problems. Further, the large government budget deficits that accumulated during the 1980s reduced the funding available for social research—along with many other domestic policy priorities. Others believe that initial expectations about what social and cultural indicators could accomplish may have been "oversold." These observers argued that the usefulness of the existing social and cultural indicators had not been demonstrated to leaders and that, therefore, the indicators were not directly used in policy making. Further, social processes were proving to be more complex and less clearly understood than economic ones, and

[19] The General Social Survey has been conducted by NORC (formerly known as the National Opinion Research Center) since 1972. The Bureau of Justice Statistics has sponsored the National Crime Victimization Survey since 1973, although it is conducted by the Census Bureau.

[20] Organisation for Economic Co-operation and Development, *Living Conditions In OECD Countries: A Compendium Of Social Indicators* (Paris: 1986).

[21] Organisation for Economic Co-operation and Development, *Society at a Glance: OECD Social Indicators 2002 Edition* (Paris: 2002).

there was no theoretical framework comparable to economic theory. An additional factor may have been that the extensive cost of and effort associated with collecting and analyzing social data were significant due to the limited technology available at that time; and benefits were unclear.

In fact, the diversity of the ways in which social and cultural indicators can be conceptualized continues to be a challenge. Many topical areas that appear to reside clearly within that domain (e.g., social equity), upon further investigation, turned out to be crosscutting and could only be examined in the context of interrelationships with the other two domains. The difficulty of work in the social and cultural domain is accentuated by the fact that it covers many sensitive moral, racial, or religious issues, among others.

Healthy People, led by the Department of Health and Human Services, is a specific example of a topical indicator system currently operating in the social and cultural domain at the U.S. national level.[22] Healthy People originated in the late 1970s during a movement in the medical, scientific, and public health communities to enhance health promotion, health protection, and disease prevention in the nation. Specifically, its purpose is to provide a consensus set of national objectives related to various health concerns—such as the prevalence of cigarette smoking and related illnesses among Americans—that the health community could agree to, obtain data on, and monitor over time. Healthy People was envisioned as a tool for progress, with a number of objectives established to provide consistent guidance to the process.

The Healthy People system has increasingly engaged stakeholders at the subnational levels to assist in progress toward national health goals and objectives. In 1987 the Healthy People Consortium—an alliance that now consists of more than 350 organizations and 250 state and local agencies—was created to forge a coalition that is dedicated to taking action to achieve the Healthy People objectives, such as reducing obesity. It facilitates broad participation in the process of developing the national prevention agenda and engages local chapters and their members in the provision of community and neighborhood leadership. The National Medical Association, Wellness Councils of America, American Hospital Association, and American Medical Association are examples of Consortium members that use their expertise, contacts and resources to adopt, promote, and

[22] See http://www.healthypeople.gov.

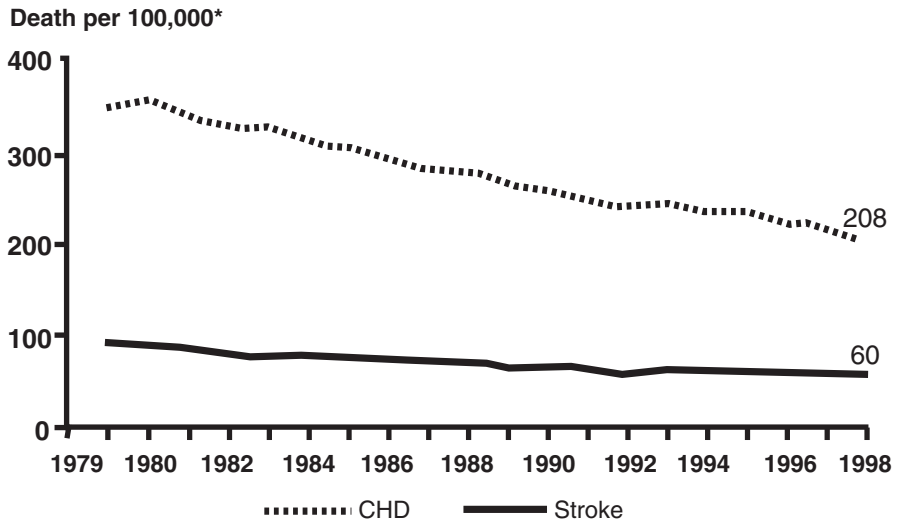
achieve the Healthy People agenda. The Consortium also seeks to coordinate Healthy People with state, local, and community level initiatives. Further, 41 states and the District of Columbia have their own Healthy People plans.

Since 1980, Healthy People has evolved into a series of 10-year efforts. For each upcoming decade, Healthy People has established new sets of goal statements, focus areas, and objectives that build upon the work of the prior decades' efforts. *Healthy People 2010: Understanding and Improving Health*, was issued in 2000 and continues the tradition by setting forth two overarching goals: (1) increasing the quality and years of healthy life and (2) eliminating health disparities. These goals are detailed in 28 focus areas that include 467 specific objectives, along with indicators to be used in monitoring progress.[23]

Figure 7 provides an example of current Healthy People indicators that measure the objective of improving cardiovascular health and quality of life through prevention, detection, and treatment of risk factors; identifying and treating heart attacks and strokes; and preventing recurrences—rates of coronary heart disease and stroke deaths (per 100,000 people). It shows that the age-adjusted death rate for heart disease (per 100,000 people) declined throughout the 1980s and 1990s to 208 in 1998, while the rate of deaths due to strokes declined to 60.

[23] Department of Health and Human Services, *Healthy People 2010: Understanding and Improving Health* (Washington, D.C.: 2000).

Figure 7: Coronary Heart Disease and Stroke Deaths, by Year, in the United States, 1979-1998



Source: Centers for Disease Control and Prevention, National Center for Health Statistics.

Notes: Data from National Vital Statistics Systems, 1979-98. The rates are age adjusted by the year 2000 standard population to compensate for the relative increase in the number of older people in the United States, who have higher rates of death from coronary heart disease and strokes.

*Age adjusted to the year 2000 standard population

Another innovation that emerged in the *Healthy People 2010* report is the identification of a smaller set of 10 "Leading Health Indicators," which provides a succinct, user-friendly measure of the health of the U.S. population. These indicators are intended to increase general public awareness and motivate action at the federal, state, and local levels. The leading indicators include measures of

- physical activity,
- overweight and obesity,
- tobacco use,
- substance abuse,
- responsible sexual behavior,

- mental health,
- injury and violence,
- environmental quality,
- immunization, and
- access to health care.

Environmental Indicator Systems

Public concerns about the quality of the environment date back to around the turn of the 20th century but began to reach a critical mass in the 1960s. Initially, many of these concerns centered on the effects of pollution. In 1962, Rachel Carson published *Silent Spring*, chronicling the effects of bioaccumulation.[24] Several reports raised similar concerns regarding the quality of the nation's rivers, lakes, and estuaries. For example, the Potomac River was heavily polluted, beach closures and warnings regarding shellfish contamination were common events, and the Cuyahoga River in Ohio caught fire. By the 1970s, the political momentum to protect the environment and the public from the hazards of pollution led to a number of laws and initiatives, including creating the EPA, establishing national standards for drinking water, legislating protections for endangered species, and enacting air and water pollution control laws.

For example, water quality is one area in which various efforts have been undertaken to develop and implement environmental policies and related indicators. Among these actions was the passage of the Federal Water Pollution Control Act Amendments of 1972, which, as amended, is commonly known as the Clean Water Act.[25] The primary objective of the act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Under the act, states have primary responsibility for implementing programs to manage water quality. In particular, state responsibilities include establishing water quality standards to achieve designated uses (the purposes for which a given body of water is intended to serve), assessing whether the quality of their waters meets state water quality standards, and developing and implementing cleanup plans for waters that do not meet standards.

[24] Rachel Carson, *Silent Spring* (Boston, Mass.: Houghton Mifflin, 1962).

[25] Pub. L. No. 92-500, 86 Stat. 816 (codified as amended in 33 U.S.C. §§ 1251-1387).

Monitoring information on water quality—for example, the presence of chemicals such as chlorine, physical characteristics such as temperature, and biological characteristics such as the health or abundance of fish—is the linchpin that allows states to perform their responsibilities. States generally monitor water quality directly, but often supplement their efforts with information collected by federal agencies, volunteer groups, and other entities. For example, many states use data collected by the U.S. Geological Survey (USGS), which has a large program for monitoring water quality.

While the use of water quality data is critical to meeting the objectives of the Clean Water Act, other organizations use water quality data for a variety of other purposes. Federal land management agencies (including the Department of the Interior's Fish and Wildlife Service, National Park Service, and Bureau of Land Management and the Department of Agriculture's Forest Service) rely upon these data to fulfill their responsibilities to protect and restore aquatic resources on federal lands. In addition to these federal agencies, numerous public and private organizations at the local level rely on water quality data to ensure that public health and environmental goals are protected. Many agencies and organizations maintain computerized data systems to store and manage the water quality data they or others collect.

Perhaps the largest water quality information system is EPA's storage and retrieval system (STORET). State, local, and federal agencies and private entities, such as universities and volunteer monitors, enter data into STORET. Multiple users can access, analyze, and summarize the raw data in STORET for many purposes. Data in STORET can now be accessed via the Internet. States turn their raw data into information on whether their waters meet water quality standards and report this information to the EPA biennially.[26] EPA then compiles and analyzes this information in the *National Water Quality Inventory*—the primary report for the public about the condition of the nation's waters —which is often used to characterize the nation's progress in achieving the goals specified in the Clean Water Act. The report is used as a basis for making management decisions regarding water quality, such as how funds are to be allocated among the states.[27]

[26] Section 305(b) of the Clean Water Act of 1972, 33 U.S.C. § 1315 (b).

[27] See http://www.epa.gov/305b for EPA's past *National Water Quality Inventory* reports.

However, the *National Water Quality Inventory* provides a limited national picture of the condition of waters and watersheds in the United States. A number of factors hinder what the *National Water Quality Inventory* data can say about conditions at the national level. Most states, territories, and tribes collect information on only a portion of their water bodies. According to the best available data from EPA, only about one-fifth of the nation's total rivers and stream miles have been assessed to determine their compliance with state water quality standards.[28] Also, state monitoring programs, sampling techniques, and standards differ. Inconsistencies are compounded by the different ways that states submit data to EPA for inclusion in the system. EPA and other agencies are in the process of addressing the inconsistencies in the ways states monitor and assess their waters, which hinder its ability to use the *National Water Quality Inventory* report for making comparisons across states.

As part of another effort, EPA collects information from 237 agencies on beach closings and advisories through its National Health Protection Survey of Beaches. Reporting under the survey is voluntary and data are drawn primarily from coastal and Great Lakes beaches rather than inland beaches, so the survey's reliability as a national indicator is unknown. Furthermore, monitoring and reporting vary by state. EPA asks survey respondents to identify the sources of pollution that cause advisories or closings. Without precise information, respondents use their best judgment to identify sources. In more than half of the cases, the source is unknown, as shown in figure 8. The most frequently identified source is storm water runoff, which contains harmful contaminants such as bacteria from livestock or pet waste.

[28] Environmental Protection Agency, *National Water Quality Inventory: 2000 Report* (Washington, D.C.: 2002).

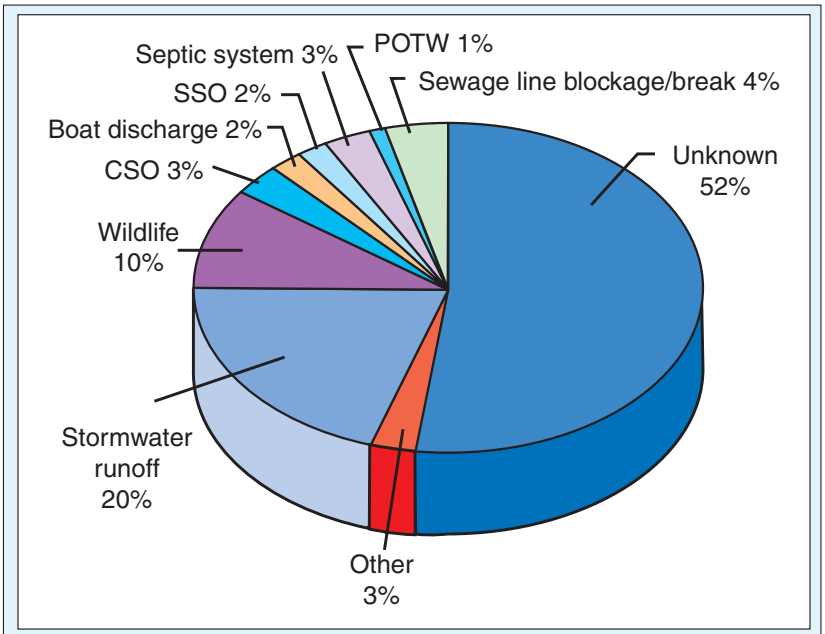
Figure 8: Reported Sources of Pollution That Resulted in Beach Closings or Advisories, 2001

What are sources of recreational water pollution?

EPA asks survey respondents to identify the sources of pollution that cause advisories or closings. Without precise information, respondents use their best judgment to identify sources. In more than half the cases, the source is unknown. The most frequently identified source is storm water runoff that contains harmful contaminants such as bacteria from livestock or pet waste, inadequate sewage treatment, or poorly designed or operated septic systems.

What human health effects are associated with recreation in contaminated waters?

The health effects of swimming in contaminated waters are usually minor and temporary—sore throats, ear infections, and diarrhea—but can be more serious, even fatal. Waterborne microbes can cause meningitis, encephalitis, and severe gastroenteritis. However, data on the effects and number of occurrences are limited. The number of occurrences may be underreported because people may not link common symptoms with exposure to contaminated recreational waters and, unless symptoms are debilitating, do not seek medical attention. Additional research and information are needed to improve understanding of the types and extent of health effects associated with swimming in contaminated waters.



CSO - Combined Sewer Overflow
SSO - Sanitary Sewer Overflow
POTW - Publicly Owned Treatment Works

Source: EPA, Office of Water.

Note: Data from EPA's Beach Watch Program: 2001 Swimming Season, May 2002.

Recognition of the Need for Comprehensive Approaches in the United States

Although there have been attempts to comprehensively integrate national-level indicators, no large-scale public effort has endured. Attempts date back to the beginning of the 20th century, when President Herbert Hoover established the Research Committee on Social Trends to bring together comprehensive information on the socioeconomic condition of the country. The Committee's 1933 report, *Recent Social Trends in the United States*, addressed many aspects of society, including the environment, demographics, health, education, recreation, religion, urban and rural life, the family, labor, crime, and the arts.[29] This effort also tried to analyze the interrelationships between trends to understand the position of the country as a whole; however, it was never repeated.

Today, efforts are underway to discuss and report on the position and progress of the nation as a whole, but they have not taken on the character of a comprehensive key national indicator system. These efforts are attempting to better organize and enhance the visibility of the indicators collected or funded by the federal government. However, they do not integrate private sector indicators, which would allow public and private sector leaders to rely on the same information and could potentially increase efficiency of access and use. Examples of ongoing federal efforts include the following.

- The annual State of the Union message describes the position and progress of the nation—along with policy priorities for the coming year—from the perspective of the current administration.[30]
- Fedstats is an online effort that provides links to a variety of statistics from federal agencies.[31]
- Online briefing rooms at the White House Web site provide selected statistics.[32]

[29] President's Research Committee on Social Trends, *Recent Social Trends in the United States* (Washington, D.C.: 1933).

[30] See http://www.whitehouse.gov/stateoftheunion/2004.

[31] See http://www.fedstats.gov.

[32] See http://www.whitehouse.gov/news/fsbr.html.

- The federal government has published *The Statistical Abstract of the United States* since the 1870s. This publication contains time series of estimates for various economic and demographic indicators at the national level.[33]

- The Interagency Council on Federal Statistics—under the leadership of OMB—exists to enhance coordination and collaboration among federal agencies that collect and disseminate indicators.

In addition to the recognition of potential value at the national level, comprehensive key indicator systems have emerged and become sustainable at much smaller scales in the "laboratories of democracy" at the local, state, and regional levels.

Current Activities to Inform the Nation through Comprehensive Key Indicator Systems

Before moving to a more detailed analysis of the state of the practice, it is worth noting the current level of activity regarding the development and interaction of comprehensive key indicator systems. Broadly speaking, the United States appears to be building a solid foundation at local levels, with less diversity and activity as one moves to the state or regional levels. The United States does not have a national system that assembles key economic, environmental, and social and cultural indicators.

Activities at the Subnational Level

Networks of communication and knowledge sharing on comprehensive key indicator systems exist at the local levels, especially communities and neighborhoods. The Urban Institute's National Neighborhood Indicators Partnership, the Community Indicators Consortium, and the Alliance for Regional Stewardship are good examples of efforts to communicate and share knowledge. (See app. III for a list of and detailed information on the comprehensive key indicator systems that we studied.)

Numerous U.S. cities also have comprehensive key indicator systems. It appears that there are significant opportunities to benefit both established and newer efforts by sharing knowledge, best practices, and research results.

[33] U.S. Census Bureau, *The Statistical Abstract of the United States* (Washington, D.C.: 2004). See http://www.census.gov/statab/www.

Activities at the U.S. National Level

A number of national leaders and experts have concluded that, particularly in light of the long-term, crosscutting challenges facing the nation, the United States should explore establishing a comprehensive key national indicator system that incorporates information from the economic, environmental, and social and cultural domains. There is evidence that the fiscal and policy issues that each level of government in our system faces are increasingly intertwined. For example, the retirement of the baby boom generation and rising health care costs threaten to overwhelm our nation's finances. To effectively address emerging challenges, many believe the nation needs to embark upon strategies that are affordable and sustainable and that consider how best to coordinate and integrate the capabilities of all levels of government, as well as the private sector, community groups, and individuals.

Further, a number of trends—including security and preparedness, globalization, a shift to knowledge-based economies, advances in science and technology, and an aging population, along with the long-range fiscal challenges facing the government—drive the need for transformation. In most federal mission areas—such as homeland security, affordable housing, and higher education assistance—national goals are increasingly achieved through the participation of many organizations. State and local governments, nonprofit institutions, and private corporations all play vital roles in formulating and implementing national initiatives. Promoting effective partnerships with third parties will prove increasingly vital to achieving national objectives.

Significant efforts have begun to explore ways to move forward in researching and developing a comprehensive key national indicator system. GAO, in cooperation with the National Academies, convened a Forum on Key National Indicators in Washington, D.C. in February 2003 to discuss whether and how to develop a key national indicator system for the United States.[34] Participants included leaders from the accountability, business, education, not-for-profit, government, labor, media, minority, scientific, and statistics communities. These participants were asked to respond to the following questions: How are the world's leading democracies measuring national performance? What might the United States do to improve its approach and why? What are important areas to

[34] GAO, *Forum on Key National Indicators: Assessing the Nation's Position and Progress*, GAO-03-672SP (Washington, D.C.: 2003). Also see http://www.gao.gov/npi/ for more information.

measure in assessing U.S. national performance? How might new U.S. approaches be led and implemented? After discussing these questions at length, participants pointed out the following four main messages.

- **Developing key national indicators for the United States is important**. While there are a variety of indicator efforts in the nation, there is no generally accepted, comprehensive key indicator system for the nation as a whole. Participants generally believed that developing key national indicators is important for taking a more comprehensive view of the nation's position and progress, both on an absolute and relative basis. Several models were discussed that offer lessons for developing a national indicator system, including existing national topical indicator systems on aging, children, economics, and health. Participants emphasized that the purpose of measurement, the process of deciding what to measure, and the process of determining the audiences are as critical as choosing what and how to measure.

- **A broad range of information areas are considered significant**. The range of information assets cover the economic, social and cultural, and environmental domains. Participants said that a first step is to assemble "core" indicators from these existing sources. A straw proposal—"USA Series 0.5"—was presented as a starting point for building what might eventually become a broadly supported indicator set. The "USA Series 0.5" included 11 key information areas: community, crime, ecology, education, governance, health, the macro economy, security, social support, sustainability, and transparency. In reacting to "USA Series 0.5," participants suggested numerous refinements and identified four additional information areas: communications, diversity, individual values, and socioeconomic mobility.

- **A rich history of indicator systems warrants collective research**. There is a long history of efforts throughout the world by leading democracies to develop and sustain indicator systems. A distinction was made between comprehensive indicator systems versus efforts that focus on specific topical areas or issues. Research on what can be learned from these systems is essential for deriving useful information for a possible U.S. national system. Although comprehensive efforts are currently under way in other democracies (e.g., Australia and Canada) as well in the United States at the regional, state, and local levels, it appears that few common sources of broad research exist to facilitate knowledge sharing on comprehensive indicator efforts.

- **A U.S. national initiative must build on past lessons and current efforts.** Developing a U.S. national comprehensive key indicator system requires applying lessons from past efforts and engaging with many existing efforts. A U.S. system must be flexible and evolve to respond to economic, social and cultural, and environmental change. A comprehensive key indicator system for the United States must be of high quality, focused, independent, and have a definable audience. It should incorporate diverse perspectives and would require adequate funding, both in terms of its development and sustainability.

With nearly unanimous endorsement from forum participants of the importance of pursuing the idea further, an informal National Coordinating Committee (NCC) of public and private sector institutions was constituted after the forum. Since then, the Key National Indicators Initiative (KNII) has grown to include a large, diverse group of leaders from the government, business, research, and not-for-profit sectors. In December 2003, an important development occurred when the National Academies—an independent organization chartered by Congress to bring together experts in the areas of science and technology to conduct critical research—became the secretariat to help incubate the KNII.[35]

During 2003 and 2004, a NCC steering committee and subcommittees were created to continue the KNII discussion and refine the approach to be taken. The KNII has created a Web site to serve as a clearinghouse for knowledge on existing efforts under way throughout the country and the world to help inform and underpin the initiative (http://www.keyindicators.org). The steering committee meets regularly and has continued to reach out to identify additional partners in the planning process. These efforts have helped to build the number of participants to over 200 diverse individuals and organizations, including leaders in substantive fields (e.g., economics and the environment) and representatives of major organizations (e.g., professional associations, government agencies, and public interest groups). The NCC developed an action plan and timetable to achieve its stated aims, which revolve around the creation of a prototype "State of the USA" Web site to test dissemination of a comprehensive, user-friendly, and fact-based database.

[35] Since helping to catalyze the effort through the initial forum in February 2003, GAO has not played a formal role in this effort. However, GAO and other federal government entities (e.g., OMB and the White House Council on Environmental Quality) continue to attend meetings and participate in the ongoing exchange of professional information and ideas, and to ensure coordination across federal agencies.

It produced a draft conceptual framework for the first phase of indicator development, a draft communications plan to reach target audiences, and a grant proposal. The NCC is in the process of securing private and/or public financing to help institutionalize, sustain, and expand the initiative, and received its first major funding in August 2004.

Increasing International Interest in Indicator Systems

The past decade has witnessed continued growth in the development of national indicator systems and in the evolution of national topical indicator systems into comprehensive ones. International organizations like the United Nations, the World Bank, and the International Monetary Fund have supported such efforts, recognizing their importance in an increasingly interconnected world. However, until recently there has been no coordinated worldwide effort to study the development and implications of national indicator systems, although significant interest exists in exchanging related information about lessons learned among countries. The OECD has begun such an initiative.

The OECD is an intergovernmental organization in which 30 member countries, including the United States, discuss, develop and analyze policy. It has become one of the world's leaders in developing indicators to evaluate economic, social and cultural, and environmental conditions and to assist members in policy making. While all of the member countries are considered to be economically advanced and collectively produce two-thirds of the world's goods and services, membership is limited only by a country's commitment to a market economy and a pluralistic democracy. The majority of the work performed by the OECD is provided by its secretariat in Paris, which collects data, monitors trends, analyzes and forecasts economic developments, researches social changes and patterns in trade, environment, agriculture, technology, taxation, and more. The core work of the OECD is organized around the following five main areas—trade and investment liberalization, policy reform and development, managing new and evolving technologies, public governance, and social protection. OECD provides members with studies, technical knowledge, and expertise in these areas and uses the information to help develop guidelines and codes.

In keeping with its global leadership role in providing quality data to member countries, the OECD, in collaboration with the Italian government, is sponsoring a World Indicators Forum in November 2004 to promote and sustain a global community of practice on developing national indicator systems. The forum will provide an opportunity to coordinate research and information sharing among the 30 member nations and others, and the OECD hopes it will become an annual event.[36]

Detailed Scope and Methodology

Recognizing that before considering such a large-scale national comprehensive key indicator system, members of Congress and other leaders could benefit from a better understanding of the experiences of those who have already developed and implemented comprehensive key indicator systems, we were asked to report on the following three questions.

1. What is the state of the practice in developing and implementing comprehensive key indicator systems in the United States and around the world?

2. What are the lessons learned from these systems and future implications?

3. What are some options for Congress to consider in identifying an organization to develop and implement a national comprehensive key indicator system?

To address these questions, we collected and synthesized information from several lines of effort, including literature reviews on topical and comprehensive indicator systems in the United States and around the world; interviews with experts; panel discussions from an expert session convened by the National Academies; reviews of topical area indicator systems at the national level in the United States; fieldwork on comprehensive indicators at the state, local, and regional levels in the United States and on national and supranational efforts abroad; and a review and analysis of organizational options for a U.S. national comprehensive key indicator system.

[36] For more information, http://www.oecd.org/oecdworldforum.

We conducted a comprehensive literature review and interviewed experts in the field to get a sense of the main issues related to indicators, lessons learned, possible challenges and effects of a national indicator system, knowledge of past and current efforts at the U.S. national level, and ideas about possible efforts to study in greater depth within and outside the nation. These experts represented a wide range of communities, including academic researchers, current and former government officials, not-for-profit leaders, and noted practitioners at all levels of government. We also drew upon a literature review and set of interviews that we had conducted for our February 2003 forum on key national indicators.[37]

We studied indicator systems at the national level in the United States in the following five topical areas: the business cycle of the economy, health, children and families, aging, and science and engineering. We selected one indicator system in each of these five topical areas based on recommendations from the experts we interviewed, recognizing that this group does not represent the entire field of indicators and that other indicator systems exist in each of these topical areas. We reviewed related documents and conducted interviews with at least three key stakeholders associated with or knowledgeable about each of these efforts. We posed a standard set of questions to them that addressed issues such as their history, uses, and the challenges they have encountered.

As part of our effort to examine the current state of the practice in comprehensive key indicator systems, we studied a select group of 29 comprehensive key indicator systems that were in operation in the United States at the state, local, and regional levels, as well as in Europe. (See app. III for a list of and additional information on these 29 systems.) These systems were selected based on (1) whether they met all of the characteristics described below and (2) recommendations from experts. We selected indicator systems that

- included a mixture of economic, environmental, and social and cultural indicators (regardless of whether the indicators were organized around a particular policy focus or framework, such as quality of life or sustainable development);

- had a reputation of being used or accessed within a jurisdiction; and

[37] GAO-03-672SP.

- had been in existence for more than 2 years and were currently in operation.

As a final step in the selection process, we asked national associations representing state and local governments, including the National League of Cities and the National Association of State Budget Officers, to review our selections to determine whether we included indicator systems that generally reflected the state of the practice in the United States at the subnational level and for the most part they concurred with our selections. The European examples were selected after consultation with OECD, several European national statistical offices, and other experts.

We conducted interviews with representatives from each of the 29 comprehensive indicator systems. For the most part, our interviews focused exclusively on those integrally involved in managing the system, and we posed a standard set of questions to these representatives. We conducted separate interview sessions with these officials by convening U.S. regional interview sessions at four GAO field offices in Atlanta, Boston, Chicago, and San Francisco.

We also conducted more in-depth reviews of several of the 29 comprehensive key indicator systems we studied in the United States and Europe.

- In the United States, we conducted focused studies on a state system—the State of Oregon—and a city system—Boston. We visited Portland and Salem, Oregon, and Boston, and conducted interviews with those who had developed and implemented the systems as well as a broader range of stakeholders, including users and potential users inside and outside of government.

- We conducted focused studies outside the United States to get the perspective of national and supranational indicator systems in Europe. Specifically, we visited two European countries—Germany and the United Kingdom— as well as EU offices in Belgium and Luxembourg. We focused on the comprehensive key indicator systems that exist in each of the two countries and in the EU, and explored how they interact with each other to develop and implement these systems.

In all locations, we talked with those who are or had been involved in developing and implementing comprehensive key indicator systems, along with users and potential users of the indicator systems. However, we did

not collect systematic and detailed information on the potential versus actual range of uses by different audiences for making choices. As a result, the preponderance of our examples of usage and application may give the impression that the systems are used primarily for public purposes, as opposed to a much broader range of uses by private individuals and institutions.

Most of the graphics presented in this report from the indicator systems we studied are only to illustrate the types of information and the variety of ways it is presented in the reports or on the Web sites of these systems. The examples are not intended to highlight or discuss the substantive issues conveyed by them.

We collected descriptive information on numerous aspects of the various indicator systems described above, although we did not perform any independent, formal analyses of these selected systems in terms of benefits, costs, or risks. Also, the sample of selected systems we reviewed did not include executive information systems or private corporate systems. Importantly, we have not defined explicit, objective criteria for the success or failure of a comprehensive key indicator system. More research is needed in this area because many situational, evaluative, and contextual factors influence the determination of such criteria.

Although the federal statistical system is commented on or mentioned for the purposes of context throughout the report—because of its significant role in the issues surrounding topical and comprehensive indicator systems—we did not audit or evaluate the federal statistical system and its related agencies as part of our scope. Therefore, we are not able to comment here on the discussions that take place among the members of that system on many of the topics referred to in our report. That body of experience and judgment will be vital to any further serious dialogue on or implementation of the options and possible steps discussed in this report. We did, however, coordinate with many of the leaders within the U.S. statistical system for their expertise and relied upon their advice. These individuals also were able to comment fully on the document prior to publication.

As part of our work on all three objectives, we contracted with the National Academies, Committee on National Statistics, to select a group of what their staff viewed as the most relevant past studies conducted by the Academies on topical area, domain, and comprehensive indicator systems. The Academies' staff reviewed these studies, summarized them, and

convened a meeting of experts who had worked on or been involved with these studies to discuss the findings and lessons learned, and implications for how a national comprehensive key indicator system might be developed and implemented. The Academies' review and subsequent meeting served to validate many of the findings from our fieldwork. The meeting of experts was held on January 26 and January 27, 2004.

To identify design features that should be considered when starting or refining indicator systems, we analyzed the information obtained from our reviews of the literature and the various indicator systems described above. We applied our professional judgment to this body of information in order to develop our observations for Congress, and we also analyzed the legal requirements involved as part of our identification of broad options for consideration in developing and implementing a national effort. We did not conduct any formal cost, benefit, or risk analyses for any specific option we identified and did not make any recommendations as to which option, if any, Congress or other leaders should choose.

While we examined indicators from all domains (economic, environmental, and social and cultural) as part of our overall review of indicator systems, we conducted additional work on the domain of social and cultural indicators. Our review of this domain included a literature search on past and current efforts to develop social and cultural indicators in the United States and around the world as well as a review of information obtained from our interviews with experts in the indicator field and from practitioner interviews with selected comprehensive and topical indicator systems.

Although this report is a first step in describing the state of the practice in comprehensive indicator systems in the United States and other areas of the world, we recognize that our analyses are based, in part, on information obtained from the select group of indicator systems described above. GAO did not, nor was it asked to, catalogue the full universe of the potentially large number of topical or comprehensive key indicator systems. Moreover, indicators are only one part of the complex knowledge base required to inform a nation. For instance, comprehensive key indicator systems must be supported by more detailed databases for those who want or need to conduct more extensive research or analysis. A review of these databases and other elements that contribute to an informed society are beyond the scope of this report. When we refer to "most" or "many" indicator systems in this report, we are referring to those systems we selected to study and not the larger universe of all indicator systems. We

recognize that, given the relatively small number of systems we studied in detail, our findings and conclusions may not be applicable to the larger universe of all indicator systems. The applicability of any generalizations or extrapolations from our study examples to the U.S. national context may also be limited.

To gain additional comments and insights, we sent a copy of this report for review to over 60 representatives of various communities who possess knowledge and experience in these issues, including representatives of the scientific and research, public interest and not-for-profit, and accountability communities. We provided a broad spectrum of leaders and experts with an opportunity to comment on this report, from the following categories: (a) sectoral, including individual from the government (at all levels), business, and nonprofit sectors; (b) discipline, including both generalists as well specialists in topical areas like economics, health, the environment, and so forth; and (c) professional orientation, including scientists, academics, and practitioners. We also sent sections of our report to representatives of the systems we mention in the text in order to validate facts and figures. We incorporated their comments, where appropriate, throughout the draft. Our work was conducted from July 2003 through September 2004 in accordance with generally accepted government auditing standards.

Citizens in Diverse Locations and at All Levels of Society Have Indicator Systems

Citizens in jurisdictions throughout our country and around the world are engaged in numerous efforts to develop topical and comprehensive indicator systems. Some of these individuals act on their own behalf, but many act on behalf of the public and private institutions they represent. Diverse interested parties from a wide range of geographic areas have recognized that monitoring trends over time can provide an important method for viewing the conditions of their areas and making comparisons with others, as well as for providing information for planning and decision making. While opinions can and do differ over what constitutes position and progress, those involved in each indicator system have nonetheless found sufficient common ground to agree that sustained efforts to collect, organize, and disseminate information in more comprehensive, balanced, and understandable ways will provide critical information that all can use in discussing options and making choices.

Currently, the United States has an array of indicator systems in topical areas (such as aging and health) that describe conditions in the nation as a whole in those specific areas. In addition, many local, state, and regional entities throughout the United States —as well as several European countries and the European Union (EU)—have developed comprehensive key indicator systems that draw from these topical areas to create broader, general pictures of society and made them widely available—often via the World Wide Web. We reviewed 29 diverse systems at all levels of government, in many different parts of the United States, as well as in Germany, the United Kingdom, and the EU.[1]

The systems we studied have similarities in that each provides a public good by serving as a single, freely available source of key indicators about the economic, environmental, and social and cultural conditions of a particular jurisdiction or group of jurisdictions. Each of these systems has produced information products or services (e.g., an annual report or a Web site) where the design and marketing of the products have been geared toward better informing a target audience.

However, beyond this, the comprehensive key indicator systems we studied differed regarding basic purpose. We found that one group of systems is oriented more toward learning and information exchange. They enable citizens, researchers and leaders to learn more about and monitor

[1] See app. III for additional information on the comprehensive indicator systems we studied for this report.

conditions in their jurisdictions. Occasionally, these systems help inform the activities of others, such as making policy and fiscal decisions. In contrast, the second group of systems takes a step beyond learning and exchanging information to encompass a more outcome-oriented focus on goals or aspirations as well, however explicit or implicit they might be. These systems use indicators to monitor and encourage progress toward a set of goals or a vision for the future that has been established by the people and institutions within a jurisdiction and that has been articulated. Such systems can help create more focused, relevant information for their audiences that may, in turn, enhance the use of and continuing support for these systems.

The interactions over time within and between indicator systems are complex. For example, some of the learning-oriented systems we reviewed eventually stimulated civic activity to formulate common aspirations. Conversely, it is possible a system that is focused on too aggressive and narrow a set of goals might be weakened or fail to survive due to a lack of legitimacy or from politicization. In some instances work in a topical area, such as the environment, has expanded in scope and became more comprehensive—such as work over the past decade on sustainable development, which includes a range of economic, environmental, and social and cultural issues. Finally, developers of larger-scale efforts often learn from the innovations being pursued at smaller scales. On the other hand, smaller-scale efforts can connect their citizens to larger issues by monitoring and participating in regional, state, national, supranational, or multinational systems.

Topical Indicator Systems in the United States Form a Vital Foundation for Comprehensive Key Indicator Systems

U.S. citizens have a large variety of sources and means by which to inform themselves about the nation's position and progress. Indicators that measure various aspects of the nation's conditions come, for the most part, from a variety of national topical area systems on issues ranging from health, safety, and water quality to education, employment, and natural resources. We studied the following national topical area systems in the United States: (1) the Conference Board's Business Cycle Indicators,[2] (2) the National Science Foundation's Science and Engineering Indicators, (3) the Department of Health and Human Services' Healthy People,

[2] The Conference Board is a nonprofit organization that creates and disseminates knowledge about management and the marketplace. It works as a global, independent membership organization in the public interest.

(4) the Federal Interagency Forum on Child and Family Statistics' America's Children: Key National Indicators of Well-being, and (5) the Federal Interagency Forum on Aging-Related Statistics' Older Americans: Key Indicators of Well-being. (See app. I for additional information on these five systems.)

National Topical Area Indicator Systems Are Wide-Ranging and Have a Variety of Uses

Interested parties use national topical indicator systems in the United States in a variety of ways. All of these systems provide an important public good by bringing together diverse sets of information on particular topics—often collected by different organizations or agencies—in a single, convenient place to educate or inform the public and leaders. For example, the biennial *Science and Engineering Indicators* report (published by the National Science Board and the National Science Foundation) provides a one-stop shop for reliable, regularly updated indicators that are understandable to statisticians and nonstatisticians alike.[3] Some of the public and private policy makers we interviewed who do not study the multitude of publications on science and engineering issues said that having all of this information in one place is valuable. They have used the volume as background information for formulating policy and developing proposals, as well as for program planning.

Topical area indicator systems also provide useful information for monitoring progress by measuring, tracking, and anticipating or forecasting events. The Business Cycle Indicators system is a key example—leaders can use this set of indicators as a tool to forecast business conditions and to take action to deal with expected fluctuations in the economy before they reach crisis levels. The Business Cycle Indicators are designed to monitor, signal, and confirm cyclical changes, such as recessions, in the economy at large—and are frequently cited by newspapers and television. In addition, the leading indicators are often used to report on the extent of economic growth and signal the overall health of the economy.

Topical area indicator systems also can be used to develop and further a set of policy objectives or a national agenda, in part, through building consensus and uniting stakeholders around the development of an indicator set. The underlying concept behind Healthy People, for example, is to provide a consensus set of national objectives and indicators to

[3] National Science Board-National Science Foundation, *Science and Engineering Indicators 2004* (Arlington, Va.: 2004).

measure progress toward these objectives. The highly participatory process Healthy People has used in establishing goals and indicators is an important element that has helped rally awareness and commitment for the broad set of health objectives at the federal, state, and local levels for more than 20 years.

Many National Topical Area Indicator Systems Depend on the Federal Statistical System, as Well as Private Sector Suppliers and Providers

All of the national topical indicator systems we examined largely depend on data and indicators gathered by the federal statistical system—the federal agencies that collect and disseminate statistics as part of their missions.[4] These agencies have been organized to support specific government activities and congressional needs for statistics to help inform policy making in their areas of responsibility. The result is that we have statistical agencies for labor, health, education, transportation, science, agriculture, and justice, among others.

The decentralized nature and wide-ranging character of the system is evidenced by the fact that over 70 agencies conduct statistical activities. Ten principal federal statistical agencies collect, analyze, and produce statistics as their primary mission. As with other federal agencies, the statistical agencies have been established over time to meet specific needs and so they are diverse. The benefit of the federal statistical system is having a variety of smaller entities, which presumably may be more adaptable to meet the needs of specific audiences. However, this has also been a disadvantage in that at times it has hindered the sharing of indicators among agencies that serve similar populations or work on similar issues. For example, many agencies that collect indicators on similar populations or work on similar issues have different funding streams and variable levels of available funding, answer to different congressional oversight and appropriating committees, were created at different times for different reasons, and operate under different laws and orders.

[4] Of the national topical area indicator systems we examined, only one, the Business Cycle Indicators, is not produced by a federal agency. It is an extension of official indexes previously produced by the Department of Commerce's Bureau of Economic Analysis that continues to depend, in part, upon federal statistical information.

New Institutional Approaches Have Enhanced Indicator Development and Information Collection

We identified several recent efforts to increase coordination within the federal statistical system and enhance access to and dissemination of data across agencies, topical boundaries, and legal limitations that could also increase the opportunities to leverage federal statistical information. One major effort to enhance coordination is the Interagency Council on Federal Statistics, which provides a vehicle for coordinating statistical work and information when activities and issues cut across agencies.[5] In 1995, Congress provided explicit statutory authority to include the heads of all the principal statistical agencies on this Council. Another effort to enhance access to and dissemination of statistical data is the Confidential Information Protection and Statistical Efficiency Act of 2002 (CIPSEA), which established a uniform set of safeguards to protect the privacy of individually identifiable information acquired for statistical purposes. CIPSEA permits sharing of certain business data between the U.S. Census Bureau, the Bureau of Economic Analysis (BEA), and the Bureau of Labor Statistics (BLS).[6] An additional effort to improve coordination and expand access to federal statistical information was the establishment of the Fedstats Web site (http://www.fedstats.gov), which provides users access to statistics from over 100 federal agencies.

Perhaps even more significant is the emergence of interagency forums that have been designed to enhance public-private partnerships and increase the federal statistical system's ability to organize information around broader sets of public concerns. For example, the Federal Interagency Forum on Aging-Related Statistics and the Federal Interagency Forum on Child and Family Statistics are designed to coordinate, collaborate, and integrate federal information to improve reporting and dissemination of information to the policy community and the general public; they also try to produce more complete indicators with more consistent definitions.

Gaps in our knowledge about important national issues and populations exist in all topical areas, as do inconsistencies in how we collect information on them. In some cases, these knowledge gaps appear to be standing concerns, while in other cases new challenges or events have rendered existing information collections insufficient. Some topical indicator systems have served as springboards for identifying knowledge gaps and a means to work on collecting new or different types of indicators

[5] 44 U.S.C. § 3504(e)(8).

[6] 44 U.S.C. § 3501 note.

to fill these gaps or enhance consistency, although the changes have tended to occur incrementally.

Both the Federal Interagency Forum on Child and Family Statistics and the Federal Interagency Forum on Aging-Related Statistics seek to identify and remedy knowledge gaps in information about their respective populations, many of which appear to be long-standing concerns. Accordingly, their regular reporting includes sections devoted to presenting a description of measures that are in need of development. These lists include many important aspects of children's and older Americans' lives for which regular indicators are lacking or are in development, such as homelessness; long-term poverty; mental health; disability; neighborhood environment; and information on the social, intellectual, and emotional skills of preschoolers. The forums have been used to discuss ways to collect new measures and improve existing ones; and in some cases, agencies have fielded surveys to incorporate new measures. Moreover, in some instances topical area systems have demonstrated how indicators on similar issues or populations are collected inconsistently across various agencies, including different definitions of concepts like homelessness. For example, the work of the Interagency Forum on Aging-Related Statistics has led to a number of developments, such as the establishment of the Study of Asset and Health Dynamics Among the Oldest Old and the acceptance of more standardized age categories for use across federal agencies.

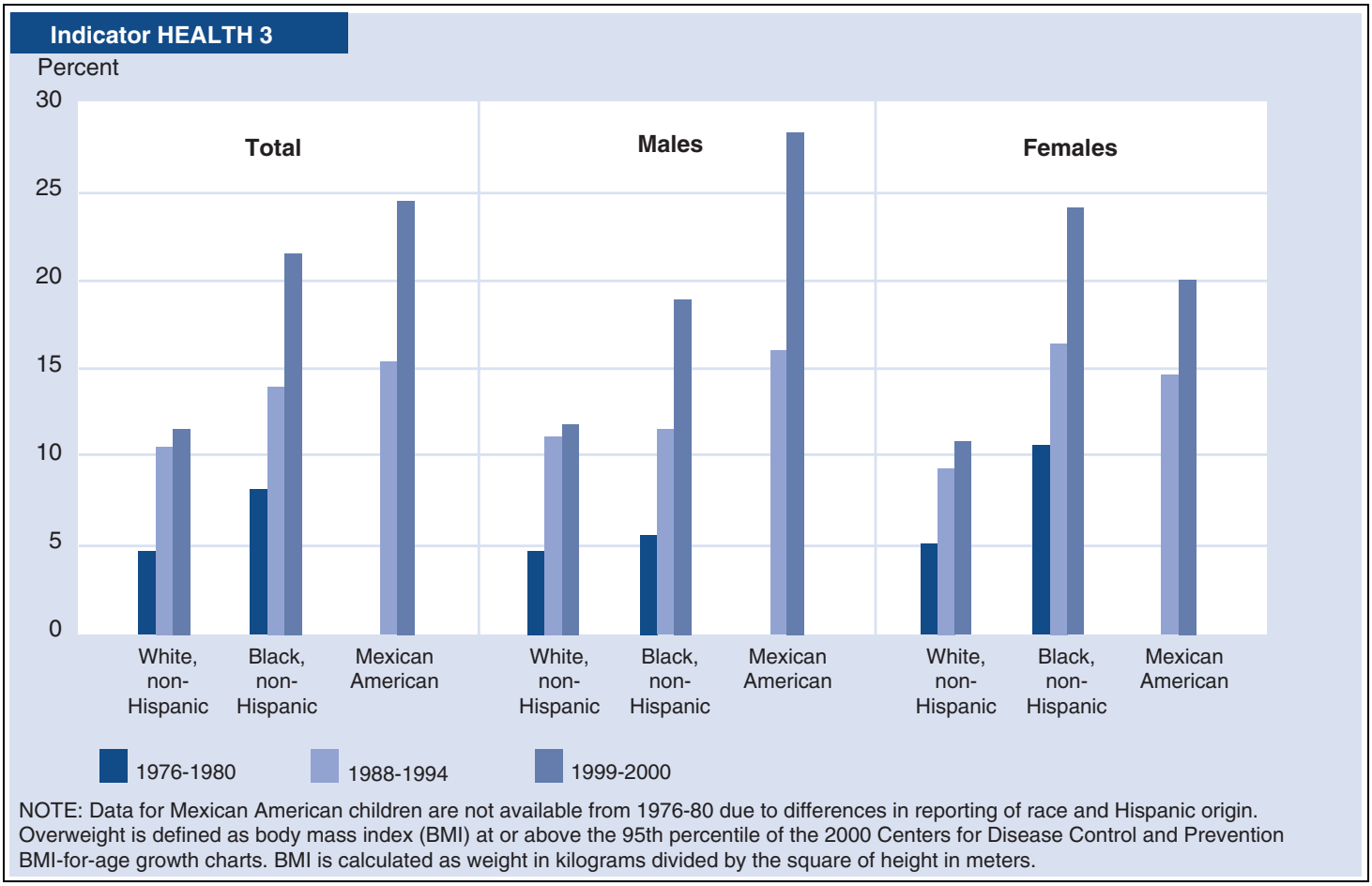
The indicator system maintained by the Federal Interagency Forum on Child and Family Statistics, referred to as America's Children: Key National Indicators of Well-being, grew from a public policy need to integrate information on subjects relating to children and their families, such as economic security, health, behavior and social environment, and education. It also originated from a need to understand the problems of the shared populations served by various federal agencies and stimulate discussions of collaborative solutions. At the outset, member agencies were concerned that they did not have, in one place, a comprehensive picture of the health and well-being of children and that while there was an abundance of indicators, they were located in too many different places. This forum, which started informally in 1994, was formally established by presidential executive order in 1997, and today it comprises over 20 agencies that have some jurisdiction over children's issues.[7]

[7] Executive Order No. 13045, 62 Fed. Reg. 19885 (1997).

The Federal Interagency Forum on Child and Family Statistics has evolved to focus on the development of a set of indicators and led to an ongoing series of reports on these indicators, which have been published annually since 1997.[8] Generally, efforts are made to keep indicators the same so that changes over time can be measured; however, indicators have been added and refined as data have improved or become available, or based on comments from interested parties. For example, a new regular indicator added to the health section of the 2003 report was children who are overweight. This indicator reflects growing national concerns about obesity among Americans. Figure 9 shows one of the indicators used to monitor the numbers and trends of overweight children and adolescents, which shows a dramatic increase in the number of children who are overweight today as well as significant differences among various racial and ethnic groups. In addition, in some years following publication of each report, a symposium has been held with representatives from the private sector and academia to seek feedback and identify any significant gaps in knowledge about children's issues. Recently, to make better use of its resources, the Federal Interagency Forum on Child and Family Statistics decided to update all indicators annually on its Web site (http://www.childstats.gov), and to alternate publishing the more detailed America's Children report with a new condensed version—*America's Children in Brief: Key National Indicators of Well-Being*—that only highlights selected indicators. Accordingly, in July 2004, the Forum published the brief, and in July 2005 the Forum will publish the more detailed report.

[8] For more information, see http://www.childstats.gov.

Figure 9: Percentage of Children Ages 6 to 18 Who Are Overweight, by Gender, Race, and Mexican-American Origin, Selected Years 1976-1980, 1988-1994, 1999-2000



Source: Centers for Disease Control and Prevention, National Center for Health Statistics.

Note: Data from the National Health and Nutrition Examination Survey.

In determining its list of key indicators for America's Children, the Federal Interagency Forum on Child and Family Statistics chose indicators that were easily understood by broad audiences; objectively based on substantial research connecting them to child well-being and using reliable data; balanced so that no single area of children's lives dominates the report; measured regularly so that they can be updated and show trends over time; and representative of large segments of the population, rather than one particular group.

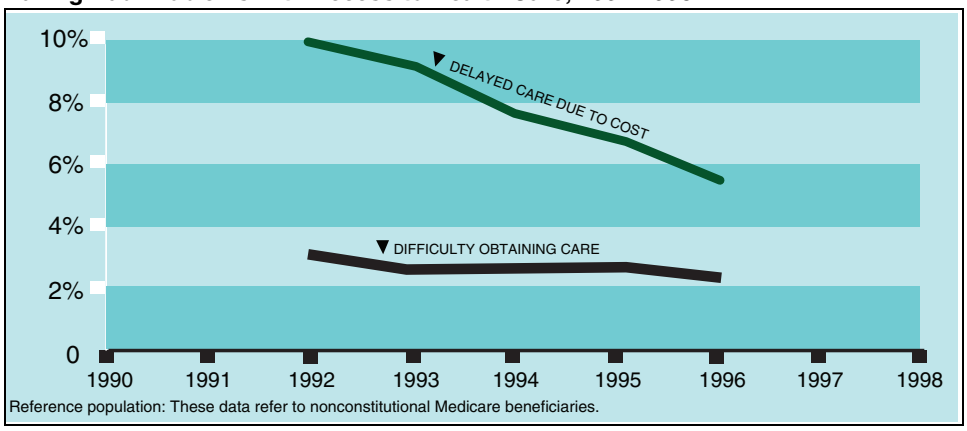
The Federal Interagency Forum on Aging-Related Statistics was created in 1986 to coordinate information related to the aging population.[9] The impetus for the Forum on Aging-Related Statistics was a need to improve the quality of information on the aging population, which has been growing and will become an even larger population with the retirement of the baby boomers. Major topics of concern include economic security, health status, health risks and behaviors, and health care. The Federal Interagency Forum on Aging-Related Statistics encourages collaboration among federal agencies to ensure that they know as much as possible about the health and well-being of the aging population.

Like the Federal Interagency Forum on Child and Family Statistics, the work of the Federal Interagency Forum on Aging-Related Statistics eventually led to the development of an interagency set of key indicators on the health and well-being of the aging population, culminating in the publication of its first, and so far only, report in 2000, entitled *Older Americans 2000: Key Indicators of Well-being.*[10] Figure 10 provides an example of one of the indicators contained in this report that is related to the ability of older Americans to access health care: the percentage of Medicare beneficiaries age 65 or older who reported having had problems with access to health care between 1992 and 1996. According to an official of the Federal Interagency Forum on Aging-Related Statistics, an updated version of their indicators report is expected in late 2004.

[9] In addition to the original three core agencies—U.S. Census Bureau, National Center for Health Statistics, and National Institute on Aging—the members of the Forum on Aging-Related Statistics now include senior officials from the Administration on Aging, Agency for Healthcare Research and Quality, Bureau of Labor Statistics, Centers for Medicare & Medicaid Services, Department of Veterans Affairs, Environmental Protection Agency, Office of Management and Budget, Office of the Assistant Secretary for Planning and Evaluation in the Department of Health and Human Services, and the Social Security Administration.

[10] Federal Interagency Forum on Aging-Related Statistics, *Older Americans 2000: Key Indicators of Well-being* (Washington, D.C.: 2000). For more information, see http://www.agingstats.gov.

Figure 10: Percentage of Medicare Beneficiaries Age 65 or Older Who Reported Having Had Problems with Access to Health Care, 1992-1996



Reference population: These data refer to nonconstitutional Medicare beneficiaries.

Source: Medicare Current Beneficiary Survey.

Topical indicator systems are also devising ways to address knowledge gaps that have been exposed by new challenges, such as changes in the global economy. For example, in the science and engineering area, research and development work is increasingly being conducted by a wider variety of parties, as there have been significant increases in research and development partnerships, alliances, and interdisciplinary research. However, it appears that current indicators in science and engineering are not sufficient to measure the trend of increased outsourcing of research and development. In response, the National Science Foundation is carrying out strategies to capture this information and change some of its data collection systems to address these data gaps.

Topical area indicator systems have also exposed instances when indicators are not collected or presented in the same way, which could cause confusion or pose difficulties in monitoring trends over time. For instance, across the health and aging areas, there are reportedly numerous different definitions of disability in federal programs. One of the primary missions of both the Federal Interagency Forum on Child and Family Statistics and the Federal Interagency Forum on Aging-Related Statistics is developing ways to improve consistency in information collection efforts and in how concepts are defined.

Topical Areas Are Evolving in Different Ways, toward Creating a Broader Picture of the Nation's Position and Progress

It is evident that many of those working in the topical fields clearly understand the need both to broaden the scope of their work and to ultimately integrate it into a broader, more comprehensive view of society. Hence, the forces working toward more comprehensive indicator systems include both citizens and professionals in topical and disciplinary communities. The following are just a few examples of such efforts.

- **Economics and non-market accounts.** The Bureau of Economic Analysis and others are working on a project to apply national economic accounting methods to sectors not included in the gross domestic product accounts, such as research and development. This is exemplified in the *Blueprint for an Expanded and Integrated Set of Accounts for the United States*, which was presented at the Conference on Research in Income and Wealth – New Architecture for the U.S. National Accounts.[11] Further, European statisticians, particularly in the Netherlands, have developed frameworks for integrating environmental information into the national accounts, and research in this area is a priority in the EU.

- **Social and cultural indicators.** Many private and public sector efforts currently sponsor either research or regular publications that bring together information on social and cultural indicators. European nations including Germany, the Scandinavian countries, and the Netherlands in particular, have developed social and cultural indicator systems that have had an impact on the social policies pursued by their governments.

- **Sustainable development.** For at least the past 15 years, the environmental community (including governments, scientists and researchers, non-governmental organizations, and businesses) has struggled worldwide to expand its work to ensure that socioeconomic development policies include a consideration of the environmental impact by developing an overall conception of sustainable development. This was first formalized at the international level, primarily by governments, when the United Nations sponsored a summit on sustainable development in Rio De Janeiro in 1992. It was followed by a

[11] Dale Jorgensen and Steve Landefeld, *Blueprint for an Expanded and Integrated Set of Accounts for the United States*, presented at the Conference on a New Architecture for the U.S. National Accounts, April 16, 2004, Washington, D.C. For more information, see http://www.nber.org/CRIW/CRIWs04/CRIWs04prog.html.

summit in Johannesburg 10 years later, which was much broader and attempted to reach a more diverse community throughout civil society. In addition, the EU has adopted sustainable development goals and mandated the development of action plans from member countries and the development of a system of indicators for measuring progress on sustainable development. As a result, many of the EU member countries are developing their own sustainable development indicator systems.

- **Well-being and happiness.** A significant body of academic research focuses on how to measure overall individual and societal well-being and happiness, as larger constructs with which to assess society. For example, researchers in the Netherlands created a World Database of Happiness, which stores available research findings on happiness and provides access to related indicators that form the basis of these findings. Another recent example was a June 2004 the Brookings Institution panel on the relationship between money and happiness, titled *Informing Policy Choices Using the Economics of Happiness*.[12]

- **Quality of life.** Perhaps the broadest set of efforts has to do with using quality of life as an integrative framework intended to move beyond the more strictly economic idea of "living standards" to a more holistic and broader conception of a society's overall status and progress. For example, the International Society for Quality of Life Studies has done extensive work on these topics and has several academic journals related to these topics, such as *Social Indicators Research* and the *Journal of Happiness Studies*.[13]

The next step beyond efforts to broaden the scope within a topical area or create new crosscutting topical areas leads naturally to comprehensive key indicator systems, which pull all these together in an integrated fashion for one or multiple jurisdictions. The interrelationships between topical and comprehensive key indicator systems appear to be highly complementary. While topical systems form the essential underpinning for aggregating information into comprehensive systems, comprehensive systems create a

[12] For a summary of the event, which was held on June 3, 2004, see http://www.brookings.edu/comm/op-ed/20040603happiness.htm.

[13] For more information, see http://market1.cob.vt.edu/isqols.

broad picture that helps illuminate areas where new topical indicators could be developed.

The Practice of Developing Comprehensive Key Indicator Systems Is Active and Diverse

We found evidence of potentially hundreds of comprehensive key indicator systems throughout the United States. In this study, we focused on 26 comprehensive key indicators systems in the United States at the subnational level that were highly diverse in terms of geographic location, size of the jurisdiction, level of governance, culture, situational conditions, political and legal structures, key public issues, and longevity. In addition, we studied 3 comprehensive key indicator systems outside the United States at the national and supranational levels—for a total of 29, as shown in table 4. (See app. III for more information on the comprehensive systems we studied in the United States and abroad.)

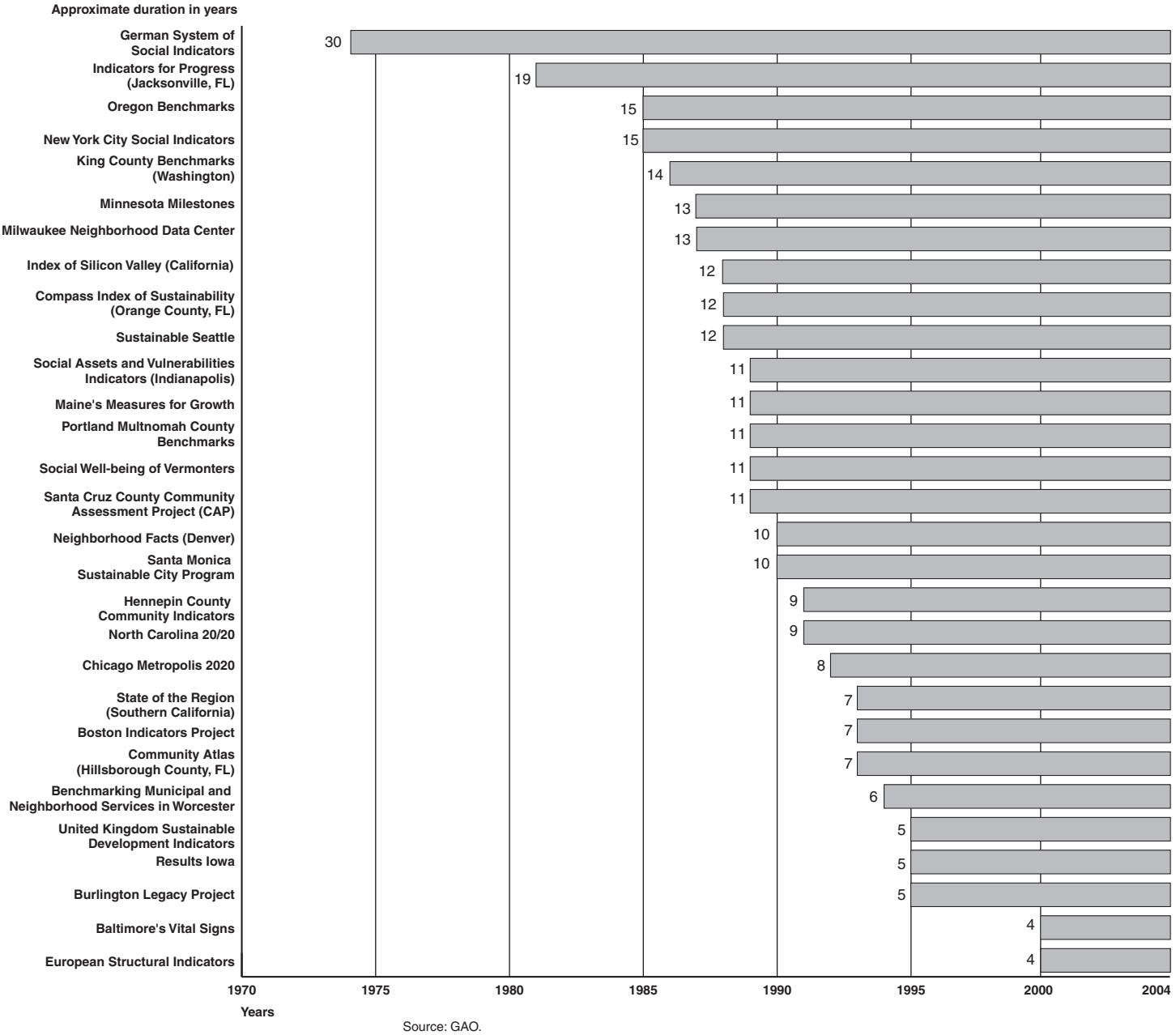
Table 4: Comprehensive Key Indicator Systems Reviewed for This Study, by Level of Jurisdiction

U.S. local/regional level	U.S. state level	National level outside the United States	Supranational level
• Baltimore's Vital Signs • Boston Indicators Project • Burlington Legacy Project • Chicago Metropolis 2020 • Neighborhood Facts (Denver) • Hennepin County Community Indicators (Minneapolis) • Community Atlas of Hillsborough County (Tampa area, Florida) • Social Assets and Vulnerabilities Indicators (Indianapolis) • Indicators for Progress (Jacksonville, Fla.) • King County Benchmarks (Washington) • Milwaukee Neighborhood Data Center • New York City Social Indicators • Compass Index of Sustainability (Orange County, Fla.) • Portland Multnomah Benchmarks (Oregon) • Santa Cruz County Community Assessment Project (California) • Santa Monica Sustainable City Program (California) • Sustainable Seattle • Index of Silicon Valley (California) • State of the Region (Southern California) • Benchmarking Municipal and Neighborhood Services in Worcester (Massachusetts)	• Results Iowa • Maine's Measures of Growth • Minnesota Milestones • North Carolina 20/20 • Oregon Benchmarks • Social Well-being of Vermonters	• German System of Social Indicators • United Kingdom Sustainable Development Indicators	• European Structural Indicators (European Union)

Source: GAO analysis.

In each case, we found active efforts to assemble indicators and focus on institutionalizing a new tool for informing the democratic process in their communities. As shown in figure 11, the longevity of the efforts we reviewed in the United States and abroad ranged from approximately 4 to 30 years.

Figure 11: Relative Longevity of Selected Comprehensive Key Indicator Systems in the United States and Abroad



Source: GAO.

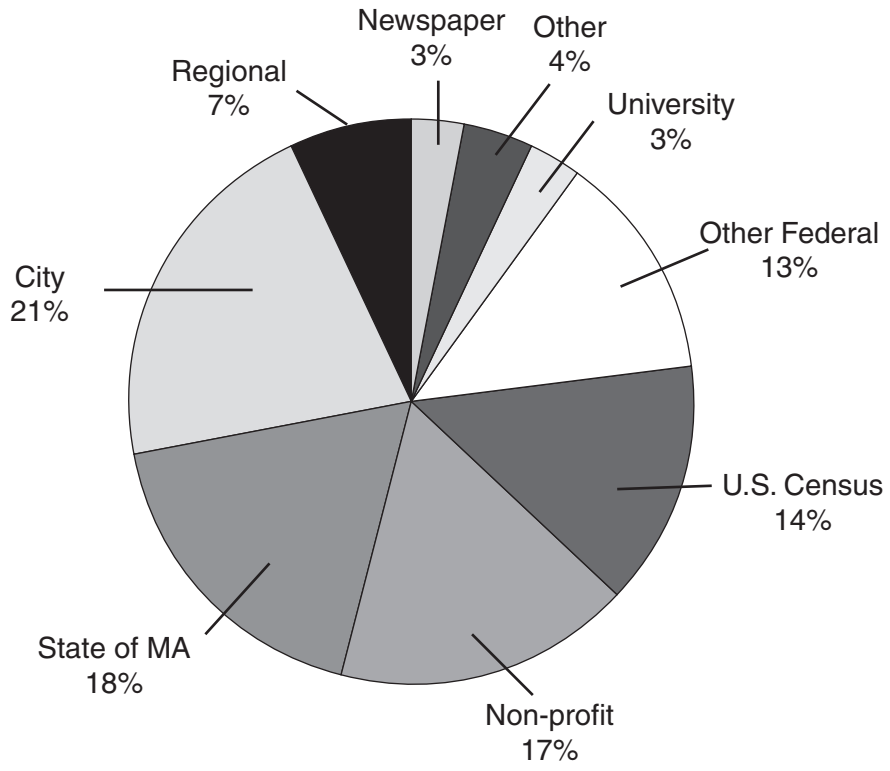
The systems we studied have similarities in that each provides a public good by serving as a freely available source of key indicators about

economic, environmental, and social and cultural conditions of a particular jurisdiction or group of jurisdictions. However, the most significant difference among them regarded their basic orientation and purpose. One group of systems is oriented more toward learning and information exchange. They enable citizens, researchers, and leaders to learn more about and serve as instruments to monitor conditions in their jurisdictions. Occasionally, these systems help to inform the activities of others, such as making policy and fiscal decisions. Another group of systems is more outcome oriented around goals or aspirations, however explicit or implicit. These systems go a step further by using the indicators as a way to monitor and encourage progress toward a set of goals or a vision for the future that has been established by the people and institutions within a jurisdiction. It appears that outcome-oriented systems tend to create more focused, relevant information for their audiences, which can aid them in overcoming some common challenges.

Comprehensive Key Indicator Systems Create a Unique Public Good: A Single Source of Information about Conditions in a Jurisdiction Available to Many Audiences

All the systems we studied have a simple idea in common: bringing together diverse sources of information into an easily accessible, useful tool—which can be considered a public good—for a broad variety of audiences and uses in their jurisdictions. Figure 12 illustrates the diversity of data sources which a comprehensive indicator system could aggregate. For example, the Boston Foundation's Boston Indicators Project brings together indicators from many public and private sources at all levels of government, including the U.S. Census Bureau, and city, university, and not-for-profit sources. In addition, systems can cut across different geographic boundaries and make different comparisons. Some systems we studied present information at a state or regional level, while others present information down to the neighborhood level.

Figure 12: Boston's Data Items by Source



Source: The Boston Foundation.

Comprehensive Key Indicator Systems Differ Primarily by the Degree to Which They Are Learning-Oriented or Outcome-Oriented

Some indicator systems solely provide information for mutual learning about the economic, environmental, and social and cultural conditions of a jurisdiction. The indicators in these systems are primarily selected based upon the information needs of their target audiences and are grouped into topical area categories without specific links to jurisdictional or regional goals. The information is often presented on Web sites with limited commentary or analysis of results. Systems of this kind that we examined were housed in academic or not-for-profit organizations. For example, the Social Assets and Vulnerabilities Indicators (SAVI) system in Indianapolis collects, organizes, and presents information on "community assets," such as schools, libraries, places of worship, hospitals, and community centers. The system also includes indicators on health, education, criminal justice, and welfare that may highlight what are referred to as "vulnerabilities," such as neighborhoods with high levels of crime and unemployment.

At the other end of the spectrum are systems that use indicators as a way to monitor and encourage progress toward outcomes, such as a set of goals or a vision for the future, that have been established for a jurisdiction or group of jurisdictions. For example, the Oregon Benchmarks system measures progress toward a strategic vision and related goals for the state—known as Oregon Shines. The indicators are organized around three broad goals: quality jobs; engaged, caring, and safe communities; and healthy, sustainable surroundings. Each of these three broad goals has numerous objectives and specific targets associated with it, and related indicators to measure progress. In most cases, both types of comprehensive key indicator systems have drawn upon the rich body of information already developed in topical areas within the three domains of economic, environmental, and social and cultural. In addition, some of the systems have evolved by changing in design or focus to adapt to different circumstances, such as user demands for more understandable information or other types of indicators.

We identified less diversity among the learning-oriented type of comprehensive key indicator system and studied fewer of these types of systems than those that are linked to goals or visions. Key illustrations of learning-oriented comprehensive systems include Neighborhood Facts, Denver, and the Social Assets and Vulnerabilities Indicators, Indianapolis.

It should be mentioned that nothing in theory prevents an organization from having purposes that incorporate aspects of both learning and outcome orientations. For instance, a learning-oriented indicator system might be drawn on for the purposes of policy analysis. Or, an outcome-oriented system could include significant educational and outreach programs to increase the understanding of its audiences.

Neighborhood Facts, Denver

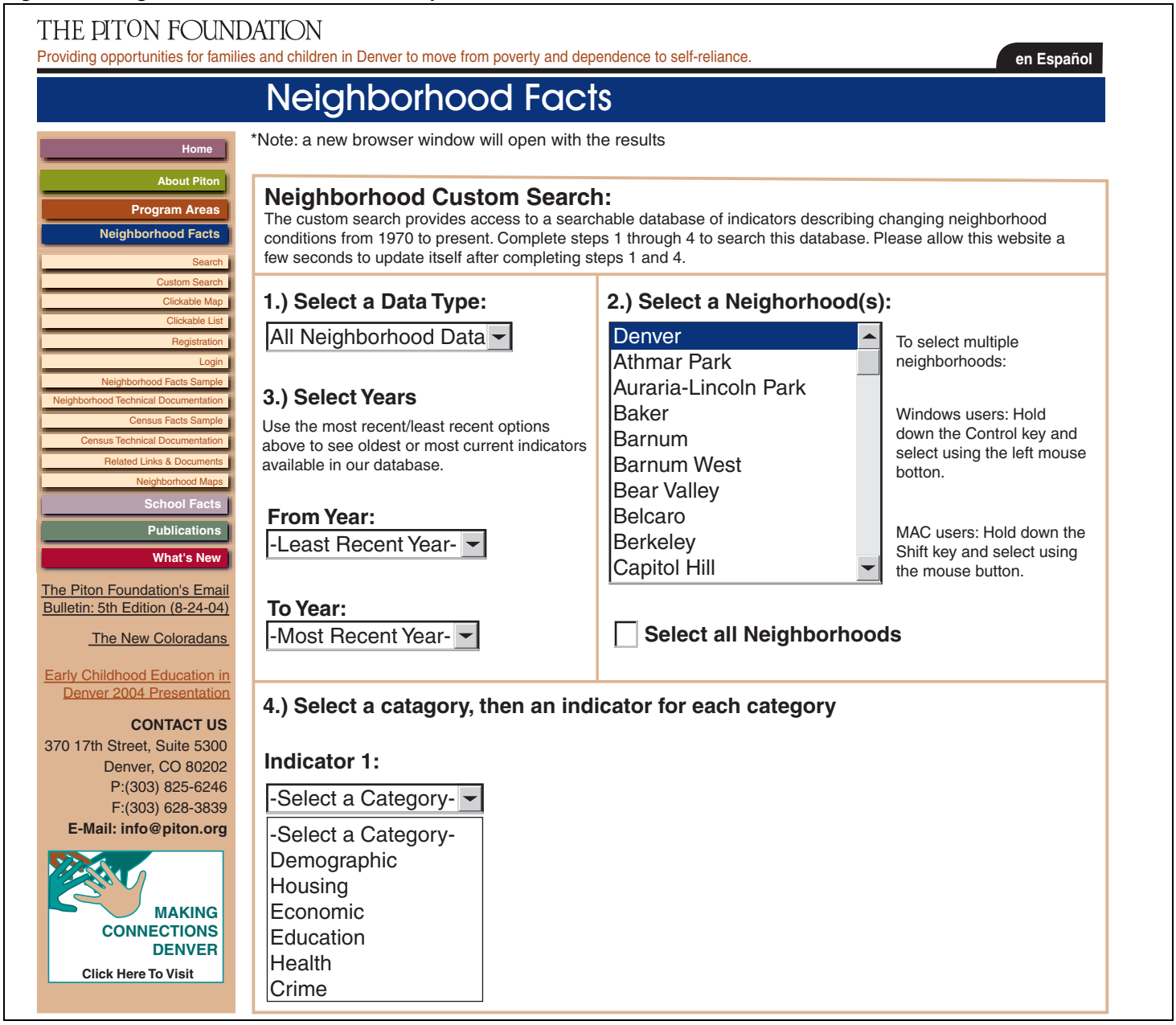
The Neighborhood Facts project in Denver provides a comprehensive source of information on neighborhood conditions in that city, which has a population of half a million people and is the state capital of Colorado. It has not established goals or targets for what neighborhood conditions should be or the levels of progress that are expected. Thus, a system like Denver's collects select pieces of information from diverse sources and organizes them so they are useful and easily accessed by their target audience. This system performs a range of activities, such as publishing regular reports with updated information on the indicators and maintaining a centralized database. Another activity is providing training and technical assistance to the public or other organizations in using the indicator

information, particularly smaller organizations with fewer resources or less expertise.

Created in 1991, the Neighborhood Facts system describes conditions in Denver's 77 neighborhoods. The system is managed by the Piton Foundation, a private foundation funded by a Denver energy company, the Gary-Williams Energy Corporation. The Piton Foundation was started in 1976 to provide opportunities for families to move from poverty and dependence to self-reliance. The impetus for Neighborhood Facts was a desire among public and private leaders to provide citizens, particularly those in neighborhoods with high concentrations of low-income individuals, with the information necessary to take action to improve conditions in their neighborhoods and to become more independent.

The indicators cover such topical areas as demographics, housing, economics, health, education, and crime. Neighborhood-level information can be compared to citywide information. For example, the system reports on the number of renters who pay more than 30 percent of income on housing for a particular neighborhood, which was identified by Piton as a key indicator of Denver's housing situation. Leaders could use this information to determine which areas of the city might be candidates for lower cost options or additional housing units, or community activists can use it to push for corrective actions. Indicator information is obtained from local, state, and federal sources, such as the U.S. Census Bureau. Neighborhood Facts regularly updates the information on its Web site and provides periodic e-mail bulletins to those who sign up online to receive them. Since 1994, it has published a comprehensive report on indicator results every 5 years. Piton staff provide some training to the public on how to access and use the information contained in the report and on the Web site, which is important considering the focus on assisting low-income residents and small community groups. See figure 13 for a sample of information in the Neighborhood Facts interactive online database.

Figure 13: Neighborhood Facts Database Sample, Denver



Source: The Piton Foundation.

Note: See http://www.piton.org.

Social Assets and Vulnerabilities Indicators, Indianapolis

Initiated in 1993, the Social Assets and Vulnerabilities Indicators (SAVI) system provides information on the economic, environmental, and social and cultural conditions in the Indianapolis metropolitan area, which had a population of over 1.6 million people in 2000. The Indianapolis metro area is made up of 10 counties with very different economic structures—Boone, Hamilton, Hendricks, Marion, Hancock, Morgan, Johnson, Putnam, Brown, and Shelby counties. Marion County is the center of population in the metropolitan statistical area (MSA) and in the State of Indiana overall.[14]

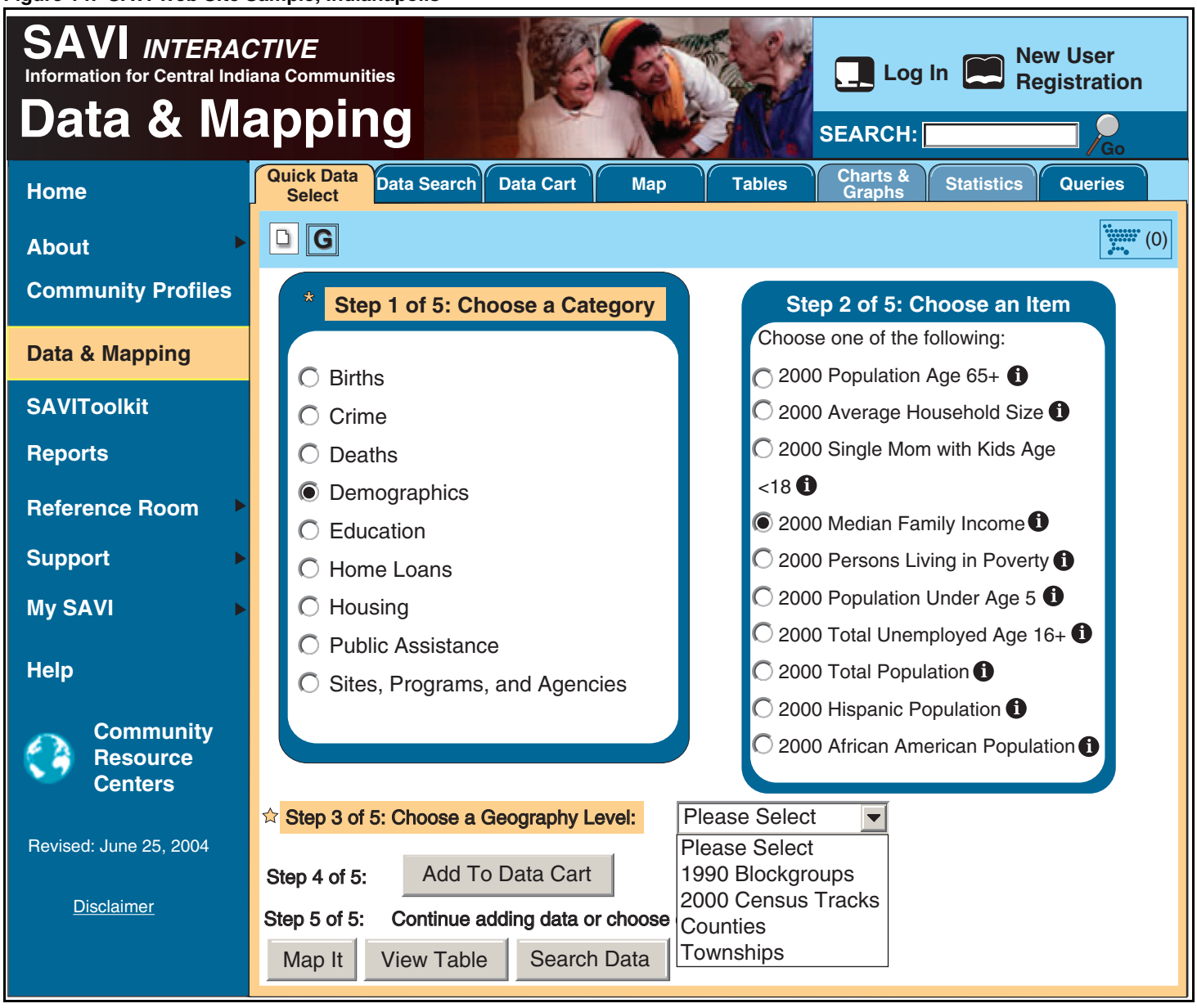
SAVI began out of an effort to update a community assessment conducted by the United Way of Central Indiana. The overriding principle of the project is to increase the accessibility of information about human services needs, assets, and resources and to provide that information at a reasonable cost to nonprofit and neighborhood groups. Further, organizers were concerned that there was too much costly redundancy in data collection throughout the Indianapolis region, as well as a desire to have public and private leaders work from the same information base about conditions in the metropolitan region. SAVI collects, organizes, and presents information on "community assets," such as schools, libraries, places of worship, hospitals, and community centers. The system also includes indicators on health, education, criminal justice, and welfare that may highlight what are referred to as "vulnerabilities," such as neighborhoods with high levels of crime and unemployment. The system allows users to match assets with vulnerabilities. For example, if the indicators showed that the most prevalent ailments in the Indianapolis region are treatable through outpatient care, yet indicators also show that there is an overabundance of hospital beds, leaders might be prompted to convert unused hospital space to outpatient treatment centers.

SAVI is managed by the Polis Center, a private not-for-profit organization located in Indiana University-Purdue University at Indianapolis. The United Way of Central Indiana is the community trustee of the project. SAVI is funded primarily by local community foundations, Indiana University-Purdue University at Indianapolis, and local governments.

[14] Following the 1990 U.S. census, the Indianapolis MSA was defined as 9 counties. Following the 2000 U.S. census, the MSA was redefined as 10 counties—adding Brown and Putnam and dropping Madison. SAVI includes 11 counties—all counties from the 1990 and 2000 MSA definitions.

SAVI aims to provide a common source of information for community-level decision making. The system integrates 10 large data sets (approximately 40 data sets in total) that are collected by others—mostly by federal, state and local agencies—and processes and presents the data at the regional and neighborhood levels. An important part of the program is teaching the public how to use its interactive database through online support and tutorials. See figure 14 for an example of the SAVI interactive Web site, which is currently being modified.

Figure 14: SAVI Web Site Sample, Indianapolis



Source: The Polis Center.

Note: See http://www.savi.org/.

Comprehensive Key Indicator Systems Are Diverse, Particularly Those That Are Outcome-Oriented

Most comprehensive key indicator systems we examined in the United States at the state, local, and regional levels, and in Europe at the national and supranational levels, are outcome-oriented in that they monitor the progress of jurisdictions in meeting certain goals or aspirations for the future and simultaneously provide information on the condition or position of jurisdictions to a wider group of users. However, these systems are diverse and vary in several major ways, including their aims and the activities they perform, their organizational structures, sources of funding and data, and the geographic level of data they present.

In most instances, the organizers of these systems selected their indicators after the goals or visions of a jurisdiction were established. However, goals or indicators typically undergo periodic updating through an iterative process of stakeholder review. For example, the EU developed its European Structural Indicators system to assess progress in achieving a set of policy goals for the economic, environmental, and social renewal of the EU that were agreed to by member countries. The indicators form the basis for a mandated annual report that policy makers use to monitor progress in achieving the goals and take appropriate action. Moreover, numeric targets are sometimes attached to the indicators, specifying the exact degree to which the indicators are expected to change over time. For example, the Oregon Benchmarks set a target for crime to decrease by 4 percent over a 10-year period. Outcome-oriented systems are designed to respond to the needs or attract the attention of a particular audience of stakeholders—that is, those who can take action to achieve the goals or those who are otherwise interested in seeing progress being made toward them. However, the systems are also available—either through public reports, a Web site, or both—to other organizations or individuals to provide information about the condition or position of a particular jurisdiction, regardless of whether they agree with or are interested in the goals or visions around which an indicator set is organized.

Comprehensive key indicator systems also vary in their aims and the activities they perform, their organizational structures, and their funding arrangements. Their various aims include holding others accountable for agreed-upon policies or strategic goals; raising awareness of issues revealed through indicator trends to spur action among leaders inside and outside government; and demonstrating connections among goals and indicators in crosscutting areas, such as sustainable development and quality of life. For example, the United Kingdom's Sustainable Development Indicators system shows various indicators of social progress, economic growth, and environmental protection that are related

to the country's ability to meet the needs of present citizens without compromising the ability of future generations to meet their own needs. Along with working toward multiple aims, comprehensive key indicators systems perform a variety of activities, such as regularly reporting to the public on progress being made toward achieving their goals or vision, or on general conditions in the jurisdiction. Some organizations choose to report results with little or no commentary on how much progress has been made. In contrast, others offer extensive commentary and analysis, such as assigning grades to signify the level or degree of progress, offering recommendations for ways to make more progress, or both. Further, based on emerging trends that some indicators have highlighted, a few systems have acted on their own to address them. Others have provided nonfinancial assistance, for example, training or technical assistance, to other organizations or entities to use the information to enhance their ability to take action.

The organizational structures and funding sources of these comprehensive key indicator systems also varied. Some have been established within government agencies; not-for-profit organizations, such as civic groups, academic institutions, or foundations; or through partnerships between public and private organizations. In some cases, new organizations were created to develop and implement the systems. In other cases, the systems were initiated in existing organizations. Sources of funding included exclusively public, exclusively private, or a mixture of the two. Diversity exists even within a particular type of funding. For example, private funding might come from one or more non-profit foundations or a for-profit corporation. The Index of Silicon Valley system in California was initiated by a non-profit organization that is a consortium of leaders in the government, academic, civic, and business communities, among others; and its funding sources are similarly diverse. In contrast, the Oregon Benchmarks system was initiated and is managed by the state government, and receives its funding exclusively from the state.

Several comprehensive key indicator systems at the state, local, and regional levels in the United States and at the national and supranational levels in Europe illustrate the similarities and differences between those that are linked to desired outcomes, such as a jurisdiction's goals or visions for the future. The following are examples of outcome-oriented systems: the Boston Indicators Project, Boston; the Index of Silicon Valley, California; the Oregon Benchmarks, State of Oregon; the Sustainable Development Indicators, the United Kingdom; and the European Structural Indicators, European Union.

Example of a Comprehensive Key Indicator System at the Local Level—Boston Indicators Project

Since 1999, the Boston Indicators Project's system has reported on progress toward shared goals for Boston, provided comprehensive information about Boston's progress in meeting those goals, and has compared the city's position to that of other cities and the nation as a whole. Boston is a racially and ethnically diverse city, with a population of nearly 600,000 (according to the 2000 U.S. census), making it the 20th largest city in the United States and a major northeastern hub. It also serves as the capital of the State of Massachusetts. (See app. IV for additional information on the Boston Indicators Project.)

Staff of the Boston Foundation, a private, not-for-profit community foundation, manages the indicators project. The project is funded through private sources yet receives some in-kind public support. The project is a collaborative effort between the Boston Foundation, the Boston Redevelopment Authority, and the Metropolitan Area Planning Council. The staff's main activities are to use the indicator system and its reports to raise awareness of emerging issues among public and private leaders as well as citizens, provide a comprehensive source of information, train and educate groups and individuals on how to use the information, provide a common source of information for civic discourse, and facilitate collaborative strategies to make progress toward citywide goals. According to organizers, the impetus for the system was a major change in Boston's economic and social conditions in the 1990s, including a transition to a more technology-based economy. Accordingly, government and community leaders called for a convenient source of information to assess the city's position and progress in a time of rapid change.

The indicators are organized along 10 goal areas: civic health, cultural life and the arts, economy, education, environment, housing, public health, public safety, technology, and transportation. For example, in the section on the environment, one goal is having accessible green and recreational spaces, and a related indicator is the amount of green space available per 1,000 children. This indicator could be used in a number of ways. If the indicator showed that Boston's green space acreage was not keeping up with the growth in the number of children in a particular neighborhood, it could be a sign that city leaders should consider increasing the amount of public open space in that neighborhood, among other options.

Further, the project groups some of its indicators by crosscutting topics, such as children and youth, race/ethnicity, and sustainable development, to help users see important connections among various issues and how they might contribute to problems such as poor race relations or racial

disparities. For example, under race/ethnicity, one could view those indicators related to monitoring the conditions of Boston's racial and ethnic communities, such as the degree of racial segregation in Boston's neighborhoods and the unemployment rate by race. Indicators are drawn primarily from existing statistical sources and supplemented by a few public opinion surveys that the project conducts.

The project publishes reports on indicator trends every 2 years and has published comprehensive reports in 2000 and 2002, with another one planned for 2004. It also maintains an interactive Web site, which is illustrated in figure 15. The goals and related indicator measures were selected through a highly participatory process involving more than 300 residents from diverse public and private organizations, neighborhoods, and racial and ethnic groups.

Figure 15: The Boston Indicators Project's Interactive Web Site

Source: The Boston Foundation.

Note: See http://www.tbf.org/indicators/.

The Boston Indicators Project is an example of a system that has evolved over time. Initially, it aimed to promote public awareness of issues though its indicators report and make information more accessible to the

community. Because of widespread support and use of the system, managers have expanded their activities to link the system's broad goals and indicators to the development of a new civic agenda for action. The project's managers have brought together a group of local leaders from government, business, academic, and not-for-profit organizations to develop a mutually agreed-to civic agenda, including long-term goals and benchmarks, that would include specific actions to address certain issues identified through the project's indicators. Managers say they believe such an agenda will allow the indicator system to have a greater impact on the city and make it more relevant to the public. The civic agenda will appear for the first time in the project's 2004 comprehensive report.

Example of a Comprehensive Key Indicator System at the Regional Level—Index of Silicon Valley

Launched in 1995, the Index of Silicon Valley annually reports on progress in achieving a set of goals—largely related to sustainable development—for California's Silicon Valley region. The Silicon Valley is commonly considered to be all of California's Santa Clara County, as well as part of San Mateo County; Scotts Valley in Santa Cruz County; and Fremont, Newark, and Union City in Alameda County. With a population of more than 2 million people, the Silicon Valley region has a larger population than 18 U.S. states.

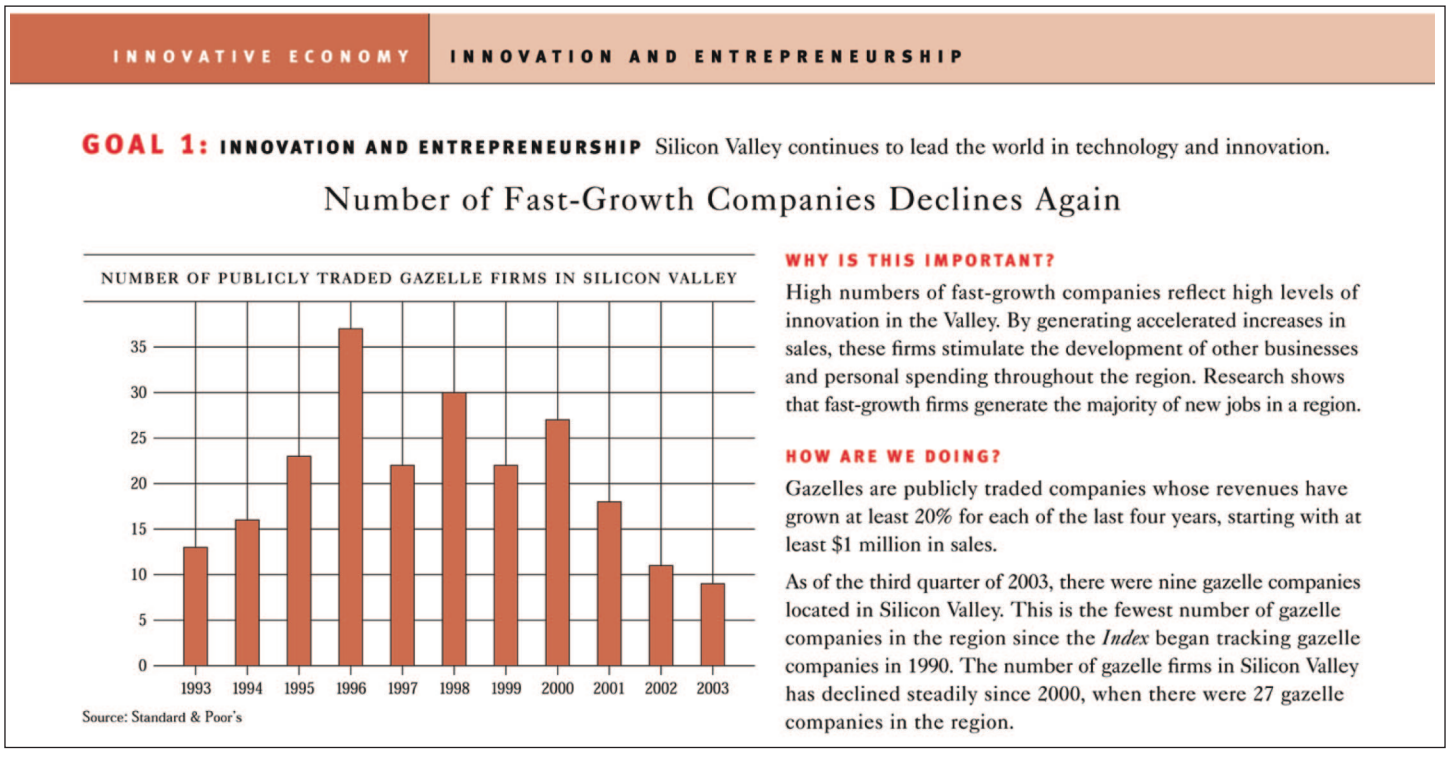
The indicator system is managed by the Joint Venture: Silicon Valley Network (JVSV), an independent and private, nonprofit organization funded by private corporations, individuals, foundations, and local governments in the region, which also constitute the target audiences. JVSV has a board of directors consisting of leaders from business, labor, government, education, nonprofits, and the community. The impetus for the system was a perceived need for leaders inside and outside of government to work together toward common goals, since the Valley itself is so diverse—containing hundreds of businesses, educational, and research institutions, as well as myriad local governments.

The system is organized around four broad themes—innovative economy, livable environment, inclusive society, and regional stewardship—and 17 goals under these themes. The related indicators deal with topical areas, such as education, health, housing, the environment, economic development, workforce preparedness, transportation, and civic involvement. For example, one goal is for the region's innovative economy to increase productivity and broaden prosperity. This goal is measured in part by an indicator of the number of fast-growth companies in the Silicon Valley. In this case, if the number of fast growth companies was shown to be declining, depending on the cause of variation, this trend could spur

collaborative efforts in the region to attract businesses that create rapid job growth, such as gazelle companies (especially fast-growing companies) that generate the most wealth, new technology, and new jobs in the Silicon Valley and across the United States. Figure 16 is an example of one of the indicators used in this system—the number of publicly traded gazelle firms in the Silicon Valley, which has declined from a high point in 1996.

Most indicators are obtained from existing sources, although some original surveys are conducted. JVSV selected the goals and accompanying indicators after consulting with thousands of residents and regional leaders in the public and private sectors. Planning for the effort began in 1992.

Figure 16: Number of Publicly Traded Gazelle Firms in the Silicon Valley



Source: Joint Venture: Silicon Valley Network.

JVSV aims to raise awareness among public and private leaders of issues highlighted by the indicator results by communicating results through an online database, oral presentations, e-mail updates, and mass mailings of

its reports. In addition, JVSV tries to tackle specific issues that emerge by facilitating various regional collaboration activities, such as seeking investors to fund and implement efforts to facilitate progress toward certain regional goals.

Example of a Comprehensive Key Indicator System at the State Level—Oregon Benchmarks

Work on the Oregon Benchmarks system was initiated in 1989, and its intent is to measure progress toward a strategic vision and related goals for the state as a whole—known as Oregon Shines[15]—and to provide a single source of comprehensive information on economic, environmental, and social and cultural conditions in Oregon. The State of Oregon has a population of slightly over 3.5 million, and it is a mix of high technology, urban areas—with over 530,000 people concentrated in Portland—and rural, agricultural areas. While the state benefited from the technology boom of the 1990s and became a high-technology hub, its economy has also suffered the effects of the downturn in this industry. The state had one of the highest unemployment rates in the United States as of July 2004. (See app. V for additional information on the Oregon Benchmarks.)

The Oregon Shines strategy was developed in the late 1980s, when the state was recovering from another serious recession. Oregonians helped to create Oregon Shines as a blueprint for the state's economic recovery, and the benchmarks system was created shortly thereafter to monitor the state's progress in achieving it. The system is managed by the Oregon Progress Board (Board), a unit of the state government that is chaired by the governor and consists of other appointed leaders inside and outside government. It also has a small government staff and is funded by state government appropriations. The Board developed, and continues to revise, the indicators based on extensive feedback sessions with other leaders and citizens, such as holding meetings with residents across the state.

The indicators are organized around three broad goals related to Oregon Shines: quality jobs; engaged, caring, and safe communities; and healthy, sustainable surroundings. Under these goals are 90 indicators regarding the economy, education, civic engagement, social support, public safety, community development, and the environment. There are numeric targets attached to each of the indicators. As an example of a particular goal and indicator, under the "safe, caring and engaged communities" goal, "students carrying weapons" is measured by the percentage of students (grades 9-12)

[15] Oregon Economic Development Department, *Oregon Shines* (Salem, Oreg.: 1989). Oregon Progress Board, *Oregon Shines II* (Salem, Oreg.: 1997).

who report carrying them—based on a statewide survey (see fig. 17). In the case of Oregon, the number of students carrying weapons has declined in the past 10 years. However, if this indicator showed that the number of students carrying guns began to increase, it could result in leaders determining that corrective actions might be necessary to address the problem. Oregon's system provides information at both the county and state levels. Approximately one-quarter of the indicators are derived from a state survey and the rest are obtained from existing federal, state, and local sources.

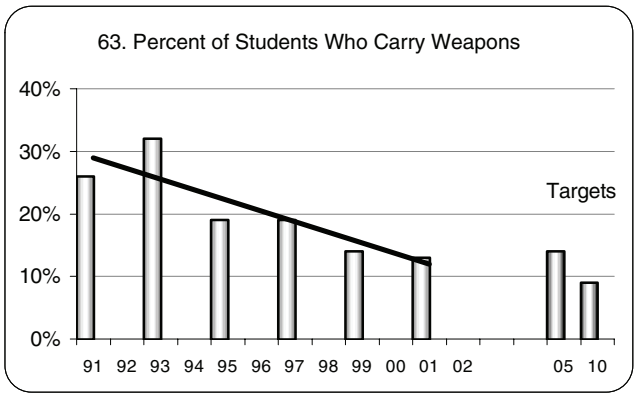
Figure 17: Students Carrying Weapons—Percentage of Students Who Carry Weapons in Oregon

63 Students Carrying Weapons
Percent of students who carry weapons

Making Progress?
Yes

Students (grades 9-12) report that they carry weapons at a far lower rate in 2001 than in 1991. Oregon is also significantly lower than the U.S. rate. (See below.)

State Agencies Linked
- Education



Oregon Department of Human Services (DHS)

How Oregon Compares

High School Students Carrying Weapons

	1993	1995	1997	1999	2001	
OR	32%	19%	19%	14%	13%	DHS
U.S.	22%	20%	18%	17%	17%	Ctrs for Disease Control & Prev.

Source: Oregon Progress Board.

A report on the indicators has been published every 2 years since 1991, and its target audience is state government officials, other leaders throughout the state, and residents of the state. The Board promotes the results throughout the state so that state agencies will have clear benchmarks to aim for and others outside of government can work to help the state achieve its indicator targets. In fact, since 2002 the indicator system has

been part of the state government's performance measurement process and state agencies are required to specify how their programs and policies will lead to improvement in areas measured by the indicators.

The Oregon Benchmarks system is another example of one that has evolved—in this case, from exclusively monitoring and communicating on the level of progress toward achieving Oregon's high-level, statewide goals to also facilitating the state government's performance measurement system. Specifically, the main mission of the Progress Board and its staff has become facilitating the state's performance measurement process and providing information to help various leaders hold state government agencies accountable for making progress toward indicator targets. However, organizers told us that they do want to lose their statewide visioning focus. Legislation enacted in 2001 mandated that the Board establish guidelines for state agencies to link their performance measures to the indicators and develop a set of best practices for doing so. Further, the Board has established a system for reporting progress on performance measures that are linked to the Oregon Benchmarks, although each agency is responsible for reporting on its individual performance. These changes were made largely in response to calls from political leaders to make the system more relevant to the policy-making process and justify its continued existence in the midst of a serious downturn in the state government's fiscal situation.

Example of a Comprehensive Key Indicator System at the National Level—United Kingdom's Sustainable Development Indicators

Since 1999, the United Kingdom's Sustainable Development Indicators system has measured progress toward the government's sustainable development strategy in the areas of social progress, economic growth, and environmental protection. The United Kingdom is a constitutional monarchy with a parliamentary system of government. It has the fourth largest economy in the world, and its population in 2002 was nearly 60 million—the third largest in the EU and the 21st largest in the world. Its overall population density is one of the highest in the world, as its population is concentrated in an area of land that is about the same size as Oregon. The United Kingdom's capital, London, is by far the largest city in the country with over 7.2 million people, making it the 13th largest city in the world.

In the late 1990s, the ruling government committed itself to the goal of achieving a better quality of life for U.K. citizens and, in 1999, developed a comprehensive sustainable development strategy for pursuing that goal. A set of indicators was developed alongside the strategy to monitor progress. The published strategy document identified a core set of 147 indicators and

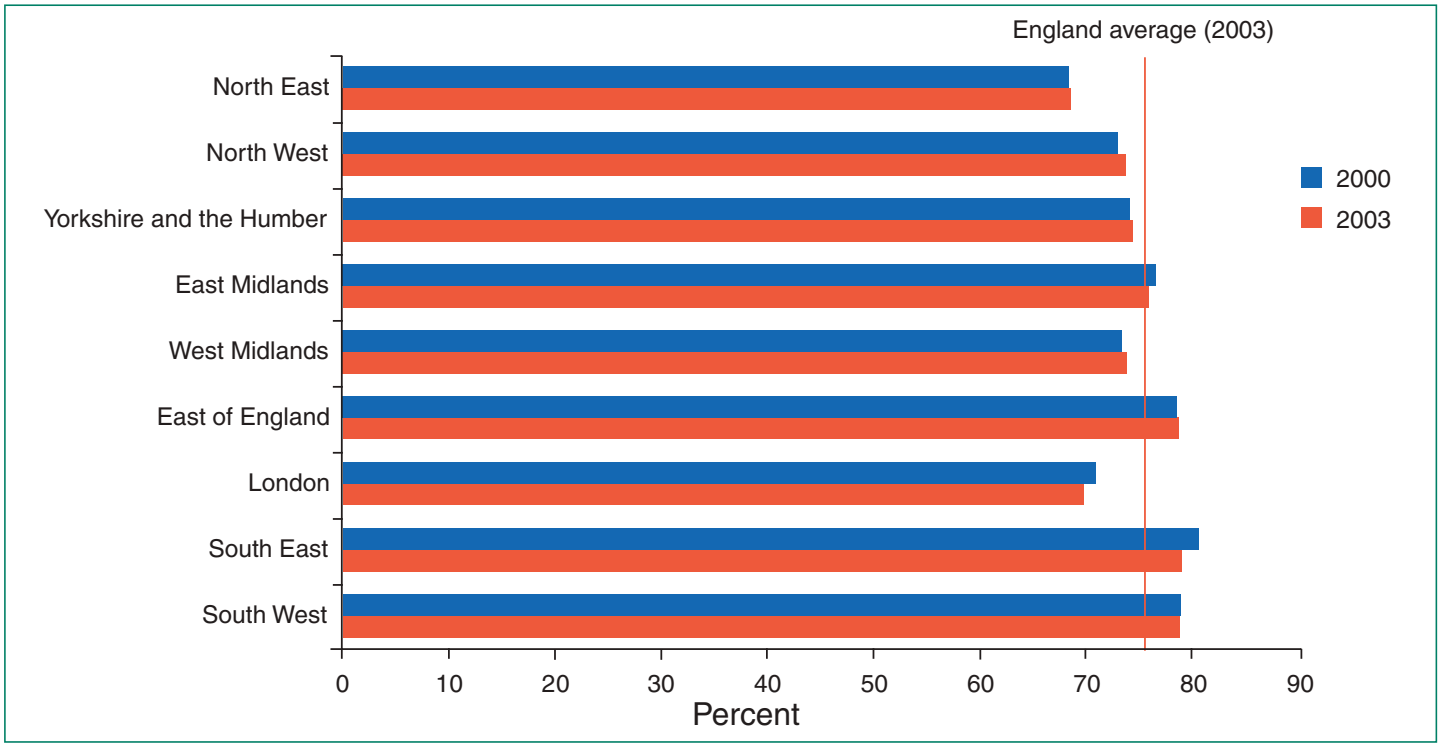
committed the government to report annually on progress against a set of 15 headline indicators—the so-called quality of life barometer. This strategy is intended to ensure that the government meets the needs of present citizens without compromising the ability of future generations to meet their own needs.

The Department for Environment, Food, and Rural Affairs (DEFRA) manages the comprehensive sustainable development strategy, along with the indicator system, on a day-to-day basis, although DEFRA must closely coordinate with other ministries of the government that have jurisdiction over other areas in the strategy. The indicator system is funded entirely by the national government.

The system contains 15 "headline" indicators in areas related to social progress, economic growth, and environmental protection, such as health, jobs, crime, air quality, traffic, housing, educational achievement, and wildlife, as well as 132 other indicators in these areas. Indicators are obtained primarily from national government agencies with jurisdiction over the various topical areas, including DEFRA.

For example, one headline indicator measuring progress toward the goal of maintaining high and stable levels of economic growth and employment is the percentage of people of working age who are currently employed (see fig. 18). If this indicator showed that the number of working-age individuals who are employed started to decline, it could raise questions and spur efforts to identify the root causes of the decline (which could range from cyclical conditions or demographic shifts to competitiveness issues). Then, the government or others could determine whether there was a need to design solutions to fit the nature of the problem. For example, they might consider enhancing job training programs or conclude that incentives to encourage businesses to increase hiring were needed to boost employment, or they might decide not to intervene. It is interesting to note that the U.K. system reports employment in a positive light (as opposed to "unemployment" as in the United States).

Figure 18: Percentage of Working-Age People Who Are Currently Employed in the United Kingdom by Region for 2000 and 2003



Source: "Regional Quality of Life Counts-2003, Department for Environment, Food and Rural Affairs, United Kingdom Crown Copyright 2004."

The system provides information on the indicators at the national level. Where possible, the definitions used are consistent with international definitions, allowing comparisons with other countries to be made. Regional versions of the 15 headline indicators are also published annually. In addition, the national indicators have influenced other regional indicators and indicator development at a sub-regional level. The first national report, a comprehensive baseline assessment for all 147 indicators, was issued in 1999 and fully updated in 2004; reports assessing progress based on the 15 headline indicators are issued annually. Also, a Web site contains updated indicators. The system was designed with the intention that the United Kingdom would use the information to modify its policies and budgets to achieve the goals contained in the strategy, particularly in areas in which the United Kingdom is not making sufficient progress or is lagging behind other countries.

Example of a Comprehensive Key Indicator System at the Supranational Level—European Union's European Structural Indicators

Since 2001, the European Structural Indicators system of the EU has measured progress toward goals for the economic, environmental, and social renewal of all of Europe, which were established in an agreement that was ratified by member countries. The EU is the latest stage in the ongoing process of European integration begun after World War II to promote peace and economic prosperity. The EU is a treaty-based, institutional framework that defines and manages economic and political cooperation among its 25 member states: Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom. The EU member countries have a total population of over 450 million people, compared to over 290 million in the United States. Standards of living measured by GDP per capita are around 30 percent below U.S. levels. Since the 1950s, European integration has expanded to encompass other economic sectors; a customs union; a single market in which goods, people, and capital move freely; and a common agricultural policy. Some EU countries have also adopted a common currency (the euro). The EU has also adopted a range of social policies related to reducing inequalities and promoting social cohesion. Over the last decade, EU member states have taken additional steps toward political integration, with decisions to develop a common foreign policy and closer police and judicial cooperation. The EU sees enlargement as crucial to promoting stability and prosperity and furthering the peaceful integration of the European continent; it also has several candidate countries that are expected to join in the coming years.[16]

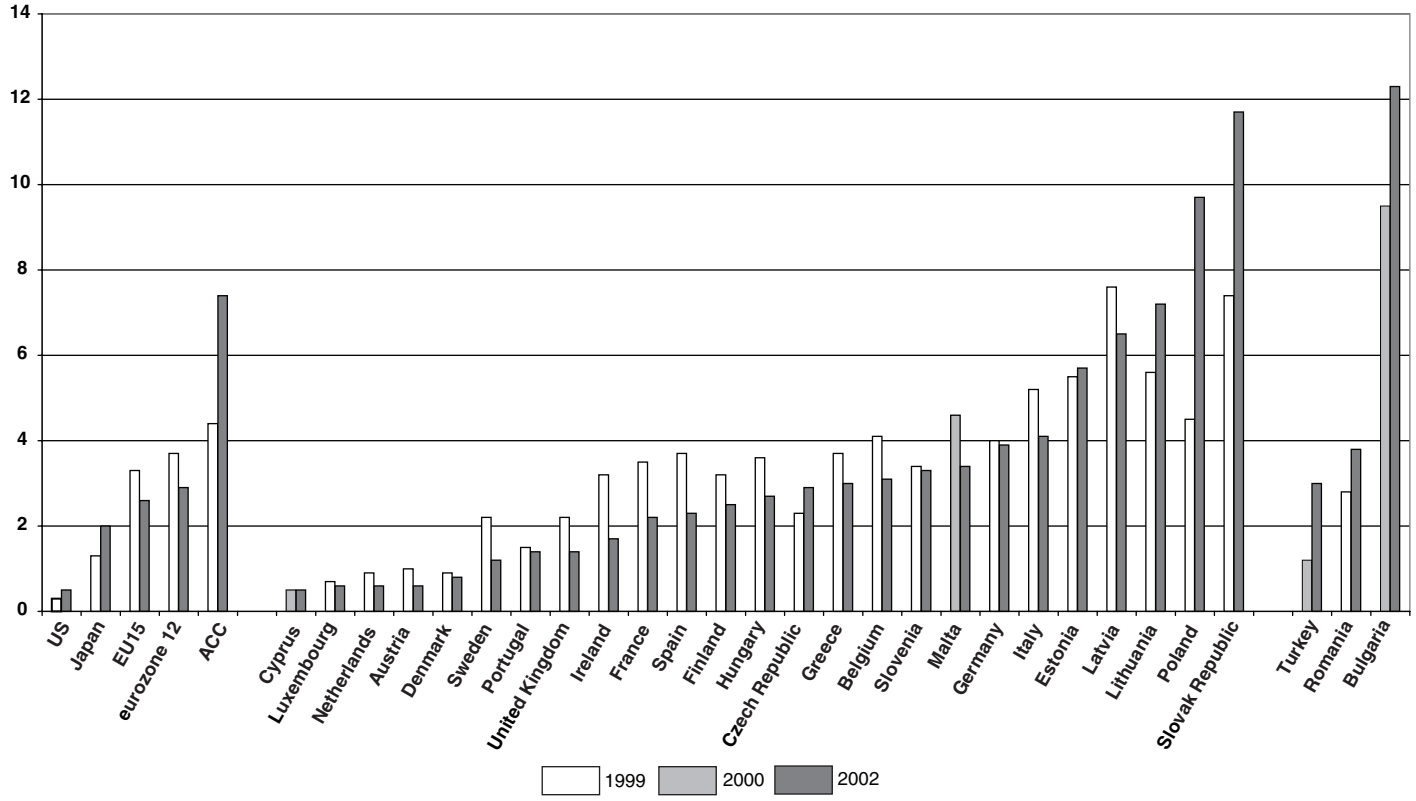
The goals for the renewal of the EU were outlined in the Lisbon Strategy of 2000 (and modified in 2001), a 10-year blueprint to promote sustainable economic growth, social cohesion, and environmental protection that member countries agreed to work toward by implementing related policies within their own borders. The impetus for creating the European Structural Indicators system was the need to track the progress of member countries in achieving the ambitious goals of the Lisbon Strategy and identifying areas that need improvement. The system is managed by the European Commission (EC), the EU's executive apparatus, which is

[16] Ten of the current 25 member states (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia) joined the EU on May 1, 2004. Two other candidates, Bulgaria and Romania, hope to complete negotiations and be able to join the EU by 2007. Another candidate, Turkey, remains in a separate category as it seeks to comply fully with the EU's political and economic criteria for membership.

partially funded by contributions from member countries. A European Council, which consists of representatives of member countries, makes decisions about the general direction of the system and which indicators to include.

The indicators are organized into five key areas: employment, innovation and research, economic reform, social cohesion, and the environment. For example, there is an indicator for the long-term (12 months or more) unemployment rate for men as a percentage of the working male population. Figure 19 illustrates the tremendous variation in the male unemployment rates among the EU countries, as well as among other non-EU countries, such as the United States. Indicators are presented at the national level to facilitate comparisons among member countries. This indicator could be used to show which EU countries have the highest male long-term unemployment rates in comparison to other members, potentially bringing down the averages for the EU overall. It could also point out which countries need to take action to boost employment within their borders, and thereby contribute to the overall social cohesion and economic security of all of Europe. Data for the indicators are obtained from countries and coordinated by Eurostat, the EC's statistical agency. The EC is required to report each year to the Council on progress in meeting the Lisbon Strategy. The progress report based on the structural indicators (and accompanying analyses) has been published every year since 2001.

Figure 19: Long-term Unemployment Rates for Men, 1999-2002



Source: Eurostat.

Note: Data from Update of the Statistical Annex, *2004 Report from the Commission to the Spring European Council: Structural Indicators*.

In response to changing circumstances, this indicator system was recently redesigned to improve its utility in monitoring and reporting on progress toward the Lisbon Strategy's goals and to encourage leaders of member countries to take action to meet those goals. Leaders from member countries agreed that the system needed to focus attention on a limited number of what were considered the most important indicators. However, the number of indicators kept increasing, and some changed from year to year, making it difficult to focus on a few important challenges or monitor progress toward the Lisbon Strategy over time. As a result, the EC reduced the number of indicators that appeared in its 2004 report to a few headline indicators, and EC officials told us that the indicators that will be reported to member country leaders annually will not change for at least 3 years. Eurostat continues to maintain and update the full set of about 100

indicators on its Web site for the benefit of other interested parties who want more detail.

Outcome-Oriented Systems May Be More Relevant to Target Audiences

Outcome-oriented systems can help create focused and relevant information for their audiences that may enhance the use of and continuing support for these systems. Audiences could be more likely to use the information if it is relevant to decisions that affect their lives and work. Relevancy is difficult, but not impossible, to determine if there is no focus on outcomes. For instance, a learning-oriented system that was especially disciplined and focused on determining the relevancy of information for its audiences could evolve towards an outcome orientation while gaining the initial advantage of building early momentum without battles over determining common aims.

Relevancy and quality also affect use. The more the information is used, the easier it is to create a cycle of stakeholder support and funding that can eventually lead to positive effects. Similarly, developers of indicator systems are more likely to identify the most significant and appropriately constructed indicators if they can, through civic dialogue and research, define a set of common aims and aspirations for their jurisdictions.

Although it was not intentional, of the 29 systems we examined, many were focused on outcomes in one way or another. Our interviews with officials representing these systems revealed that an outcome orientation—whether outcomes were formative and implicit or well advanced and explicit—had an impact on the system by making it somewhat easier to select indicators that were relevant to the system's audiences.

The vocabulary usage surrounding discussions of outcomes is sometimes inconsistent, and thus potentially confusing. This is because outcomes can be defined in forms ranging from:

1. the general—what could be called an aim, vision, or aspiration (e.g., a healthy population); to

2. a more focused articulation of intent with direct implications for existing institutions and programs—what could be called a goal or objective (e.g., reduce the nation's level of obesity); to

3. a specific objective—what could be called a target (e.g., reducing teen pregnancy in a city by 10 percent from its current level over a 4-year period).

Whether outcomes are stated in general or specific terms is not necessarily a reflection on their utility or legitimacy. An unrealistic goal that is very specific can create problems in contrast to a vague, general aspiration that has broad support and builds common ground. For instance, a frequently observed phenomenon associated with systems that try to measure performance and make links to results is the manipulation of data in order to meet specified goals, targets, or mandated requirements.

Different methods of developing an outcome-orientation can also be highly interrelated. Positive or negative experiences with targets (e.g., the inability to effectively measure an area like the fine arts) could lead a jurisdiction to back off to more general goal statements. Building consensus around aspirations could, over time, lead progressively to statements of goals and then eventually to targets as a jurisdiction gains the confidence and experience in managing to greater levels of specificity and detail. It is important to clarify terminology and recognize these interrelationships in any discussion of comprehensive key indicator systems.

Comprehensive Key Indicator Systems Are a Noteworthy Development with Potentially Broad Applicability

The implications of comprehensive key indicator systems for the United States are significant. Our work covered a diverse set of systems in different geographic regions of the United States and abroad, from small scale (under 1 million in population) to large scale (over 450 million), with widely differing demographics, cultures, political dynamics, and economic structures. Although the comprehensive key indicator systems we reviewed were diverse in many respects, our analysis revealed similarities in the challenges they faced and the types of positive effects they experienced.

These similarities provide evidence of a pattern in development and implementation that can provide useful lessons learned for others who are considering establishing or enhancing such systems. Further, comprehensive key indicator systems represent a positive step in the evolution of measurement practices. Prior efforts, including developing useful data on a wide range of topics and systematic efforts to measure performance, form the basis for developing more comprehensive information systems to address increasingly complex and interrelated issues. It appears that comprehensive key indicator systems have broad applicability to all levels of society and forms of governance—from neighborhoods to nations as a whole. However, the commonalities we discuss here should not be interpreted as a "one-size-fits-all" approach. Local factors would have to be taken into account.

A Diverse Set of Systems Faced Similar Challenges

Despite the diversity of the comprehensive key indicator systems we studied across the United States and around the world, we found that similar challenges existed when developing and implementing these systems. The five common challenges we identified involved some issues that were difficult to overcome, took years to address, or both. In addition, some challenges require ongoing attention. The exact nature and magnitude of the challenges varied from place to place based on various factors, including the system's purpose and target audiences as well as the features of the particular jurisdiction, such as its political and economic structures. The common challenges we identified in the course of our work are

- gaining and sustaining stakeholders' support for a system,
- securing and maintaining adequate funding,
- agreeing on the types and number of indicators to include,

- obtaining indicators or data for the system, and
- effectively leveraging information technology.

Gaining and Sustaining Stakeholders' Support

The challenge of gaining and sustaining support is continuous, even among systems we reviewed that already had strong levels of political and financial support and large user bases. For instance, we found that organizers faced challenges due to concerns about how the indicators might be perceived and used. Some systems that were able to garner the strong support needed to start an effort experienced difficulties in maintaining that support over time. It was also challenging to ensure that leaders, policymakers, and a wide range of interested parties viewed the indicator systems as relevant and useful.

Seeking broad support and commitment helped comprehensive key indicator systems avoid "capture" by one party or particular interest group. Some systems have instituted broad-based governing structures at the outset to address this issue. For example, the North Carolina Progress Board's (which runs North Carolina 20/20) members are appointed by the governor, leaders of the legislature, and the Progress Board itself. Further, to keep its operations as independent as possible, the indicator system's board represents a cross-section of the state and includes a former governor and representatives from the academic community. The Progress Board reports directly to the Board of Governors of the State University system.

Involving a range of stakeholders helped ensure a mix of interested parties would use the system over time and identify needed refinements to ensure its continued relevance. For example, the Portland Multnomah Progress Board—organizers of a city/county comprehensive indicator system in Oregon—has benefited from having strong support from the county chairperson and the mayor. However, uncertainties regarding who would continue to champion the indicator system in the future when these elected officials might change represented a continuing challenge, according to Progress Board officials. They highlighted the importance of ongoing communications to build continuing support, explain what the indicators measure, and their usefulness. This can be accomplished through briefing policymakers and outreaching to businesses, community leaders, and other interested parties on the usefulness of having a single, convenient source of information on the economic, environmental, and social and cultural conditions of their jurisdictions.

Officials we interviewed identified several specific types of challenges they encountered in gaining and sustaining support for their comprehensive key indicator systems, including (1) perceptions of bias or a lack of independence because the indicator system was initiated or supported by a particular official or political party and (2) questions about comprehensive systems being out of touch and not used in policy making.

Perceptions of bias or a lack of independence. Support for a comprehensive key indicator system can be undermined if it is viewed as being nonobjective and biased because of its association with a particular political leader or party.

While leaders' support can help an indicator system come into existence and survive for a time, an indicator system that is viewed as one administration's or one party's initiative can be vulnerable to changes or elimination as administrations or circumstances change. Several of the state-level comprehensive indicator systems that we examined were closely associated with a particular governor and experienced challenges related to securing and maintaining political support over time, particularly among legislative bodies or those of the opposite political party. This perception of a lack of independence played a role in the history, development, and near demise of the Oregon Benchmarks system, which is managed by the Oregon Progress Board. Four successive governors of the same political party have championed this system. When it came into existence in the late 1980s, the then-governor's political party controlled the state legislature. However, by 1994 the opposing political party had gained control of the entire legislature, and some of the new legislators were suspicious of the goals and targets of the indicator system. They believed the targeted levels set for many of the benchmarks were part of a strategy to increase public funding for the other party's favored programs. In 1995, the legislature allowed the authorization for the Progress Board to expire, although the newly elected governor reestablished it by using executive authority.

A strategy used by Oregon Progress Board's executive director to encourage the legislature to restore the authorization for the Board and the benchmarks was to demonstrate the value of the system through education about what the indicators measure and how they could be used. Eventually, management was able to gain support of two key legislators, who were appointed to the Board. The Board also instituted a broad-based structure to ensure greater independence and

bipartisan support from multiple communities. The Board and the indicator system were eventually reauthorized by the legislature on a permanent basis in 1997. This system has refocused its efforts to become more useable and relevant to leaders and keep it on a more stable course. To justify its continued existence in a tough state fiscal crisis, the Oregon Benchmarks has become a formal part of the state government's performance measurement system, and agencies are required to link their individual performance reports to the higher-level indicators.

Questions of relevance and usefulness. Ongoing support for a comprehensive indicator system could be compromised by questions about the value of and need for an indicator system that brings together indicators in particular domains or topical areas that are already available elsewhere.

Policy making in the United States and around the world tends to be considered and made in individual topical areas or domains, such as tax, health, and education policy. Governments at all levels, including executive branch agencies and legislative committees, also tend to be organized along the lines of specific topical areas. A comprehensive indicator system designed around a crosscutting area, such as a sustainable development framework dealing with economic development, environmental quality, and social and cultural concerns, would, therefore, not have a built-in audience. This increases the difficulty of encouraging leaders to think about issues in that framework, and to use the indicator system as a tool for doing so. For example, organizers of the United Kingdom's Sustainable Development Indicators said it was unclear whether their system has prompted leaders to focus on comprehensive sustainable development strategies, even with support from the Prime Minister. They have undertaken an ongoing communications strategy, including an annual national report and media events, although they acknowledge that changing the way policymakers use information in making decisions will be an evolving process.

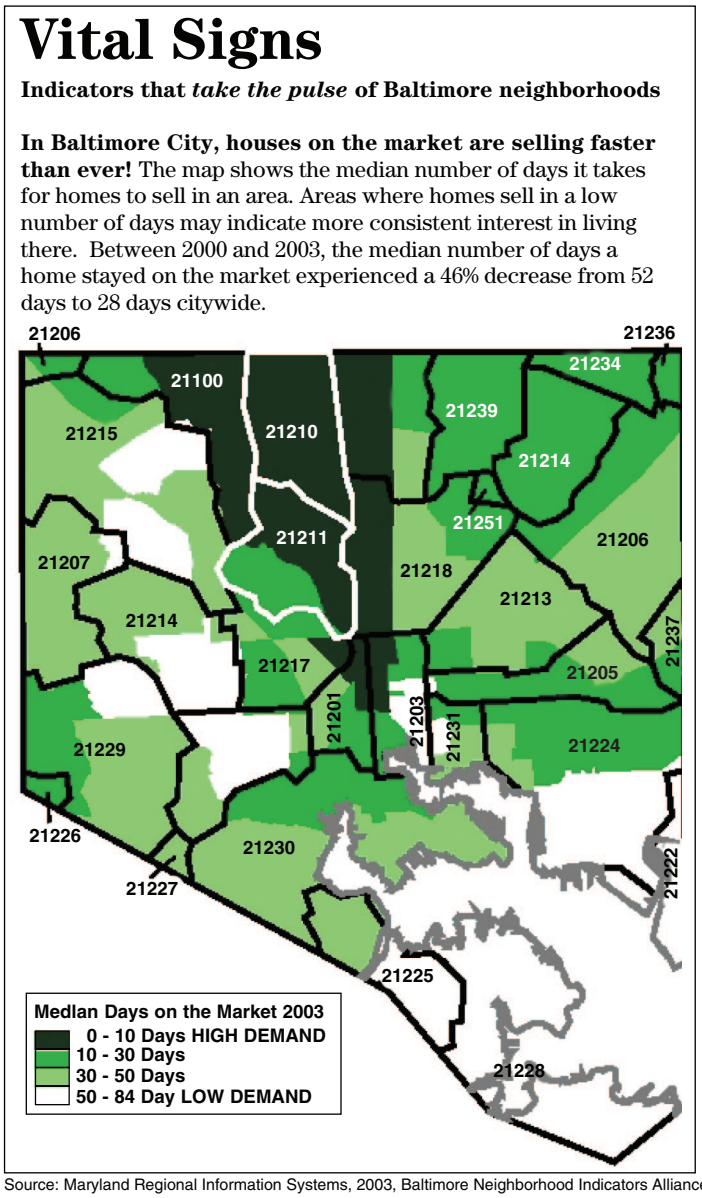
Leaders may continue to reach out for information already available in their individual topical areas and make policy accordingly, possibly rendering a comprehensive indicator system underutilized at best or irrelevant at worst. To overcome this challenge, comprehensive systems have found it necessary to conduct extensive outreach to make sure the public is aware of and understands what the indicators

monitor, and how this information could be used by different individuals and groups. This has been accomplished in a variety of ways, including presentations and training, or even redesigning their systems to appeal to their target audiences.

For example, organizers of Baltimore's Vital Signs indicator system told us they continually make presentations and conduct training sessions for citywide stakeholders, including the Baltimore City Council, the Mayor's staff, the Baltimore City Department of Housing, and the Association of Baltimore Area Grant makers. The purpose of this outreach is to make sure leaders, neighborhood groups, and citizens understand what the indicators are and what they measure so everyone can be on the same page about which economic, environmental, and social and cultural conditions are changing, or not changing, in the community. Further, several of their stakeholder organizations, including the Association of Baltimore Area Grant makers, have sent the Vital Signs report to their members to promote wider use of the indicators.[1] Figure 20 provides an example of an indicator from the Vital Signs system—the median number of days it takes for homes to sell in a particular area of Baltimore.

[1] This effort should not be confused with the Baltimore city government's CitiStat, which is an accountability tool used by the Mayor and city officials to hold city managers accountable and to measure government results.

Figure 20: Median Number of Days It Takes for Homes to Sell in a Particular Area of Baltimore



Source: Maryland Regional Information Systems, 2003, Baltimore Neighborhood Indicators Alliance.

In addition, other factors can affect perceptions about a system's relevance and usefulness. These factors include situations when information does not match the comprehension level of the target audience (such as being

overly technical), or the system does not cover areas that are meaningful or important to key stakeholders.

Due to questions about relevance, the Burlington Legacy Project (BLP) system in Vermont is being refocused based on feedback from and underutilization by public and private leaders in the city. Essentially, critics said that the system's indicators were not linked to the information that Burlington leaders and residents needed, and was unable to answer the basic question—how are we doing in improving quality of life and sustainability? Organizers decided that they needed an index to serve as a comprehensive measure that accounts for and links economic as well as social and environmental health, which they felt was fundamental to assessing quality of life and sustainability. In response, BLP is redesigning the system by not reporting exclusively on individual indicators, and instead is developing a single index of the quality of life in Burlington—consisting of data from 26 topical areas. Managers believe this index will attract wider attention from leaders, the public, and the media, and will become more relevant to them.[2] (For a graphic of the index, see fig. 5 of this report.)

Securing and Maintaining Adequate Funding

Securing and maintaining adequate funding can be difficult, particularly in light of current and growing fiscal challenges. In some cases managers have been forced to curtail the system's activities and in a few instances operations were nearly shut down due to fiscal constraints. For example, the Benchmarking Municipal and Neighborhood Services in Worcester (Massachusetts) system had to scale back the number of neighborhoods it covers with one of its survey tools because the data are too resource intensive to collect.[3] Other systems, like the Oregon Benchmarks and Minnesota Milestones that relied solely on their state governments for funding, have been subject to funding crises. The Oregon and Minnesota indicator systems were nearly abolished when their states experienced

[2] Organizers told us that the general progress index still allows people to drill down into the individual data points to identify major deterrents to a higher quality of life index number or which individual factors most positively affect the number.

[3] The Worcester Indicator Project in Massachusetts uses a computerized neighborhood tracking program adapted from the one used by the City of New York to collect data on municipal and neighborhood services. The ComNet survey involves a systematic review by neighborhood of specific physical conditions, such as the condition of items like sidewalks and street signs, which are recorded and mapped.

economic downturns. In Oregon, funding for the system was abolished by the legislature but was later reinstated at a lower level. The Minnesota state legislature eliminated line item funding for Minnesota's system, but for a time it was able to continue with a reduced level of funding within the state's operating budget; today, it is no longer an active system. We found that a lack of diversified funding sources made indicator systems more vulnerable to fiscal constraints due to their dependence on one source for most or all of their funding.

Systems that relied on multiple funding sources, such as government, corporate, and not-for-profit foundations, could make up for reductions from one source by turning to others for additional funding or possibly by reaching out to new funding sources. For example, corporate funding for the Index of Silicon Valley system, which operates in a geographic area that was hit hard by the downturn in the technology industry during the late 1990s, was reduced. By relying upon multiple sources, managers were able to make up for the declining corporate funding by seeking additional support from others. Specifically, several local governments increased their funding to make up for it—despite their own fiscal constraints—because these governments saw the system as a valuable tool for enhancing collaboration on issues of mutual concern, such as transportation.

Agreeing on the Types and Number of Indicators to Include

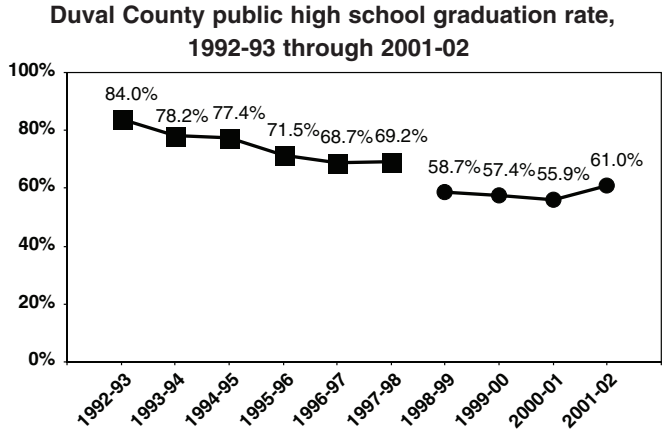
Agreeing on which indicators to include, and how many to include, in a system can be challenging, particularly when starting up a new system. However, these issues continue to present challenges as indicator sets are revised over time. The reasons for this challenge are that selecting the key issues and conditions that are important to a jurisdiction, and selecting which specific indicators to use, involves a high level of subjectivity and value judgments. This is coupled with a need to be continually responsive to emerging issues and demands.

The number of possible indicators that could be selected to measure key issues and conditions is generally quite large. Accordingly, selecting indicators is not a value neutral activity, and different individuals and organizations sometimes prefer different indicators. For example, an indicator concerning higher education can be measured in different ways, such as by the number of students who enroll in college, or the number who actually graduate. Further, there are numerous ways to measure whether public education is successful. For example, the Indicators for Progress system in Jacksonville, Florida published a report in 2003 that discusses different ways to measure public school success.[4] Figure 21 shows several of the indicators mentioned in that report.[5] According to an official of the Jacksonville Community Council Incorporated (JCCI), this figure also shows that the indicators JCCI tracks can be used as part of a citizen-based advocacy process to catalyze community improvements.

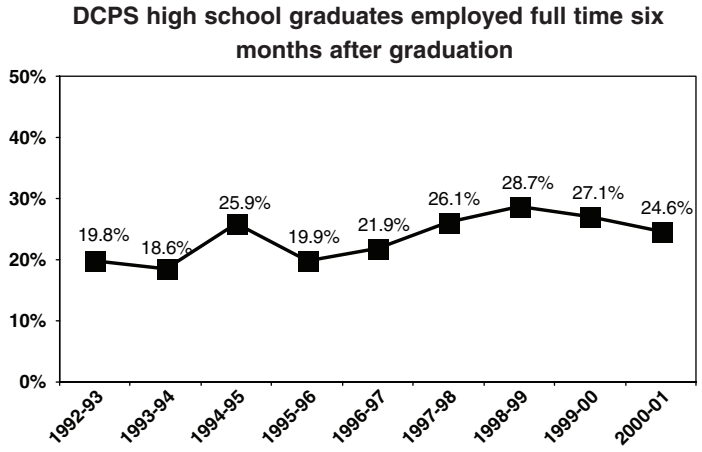
[4] These 3 indicators are among the approximately 115 indicators included in Jacksonville's Indicators for Progress indicator set, each of which is measured and reported on annually.

[5] Jacksonville Community Council, Inc., *Public Education Reform: Phase I- Assessing Progress* (Jacksonville, Fla.: 2003).

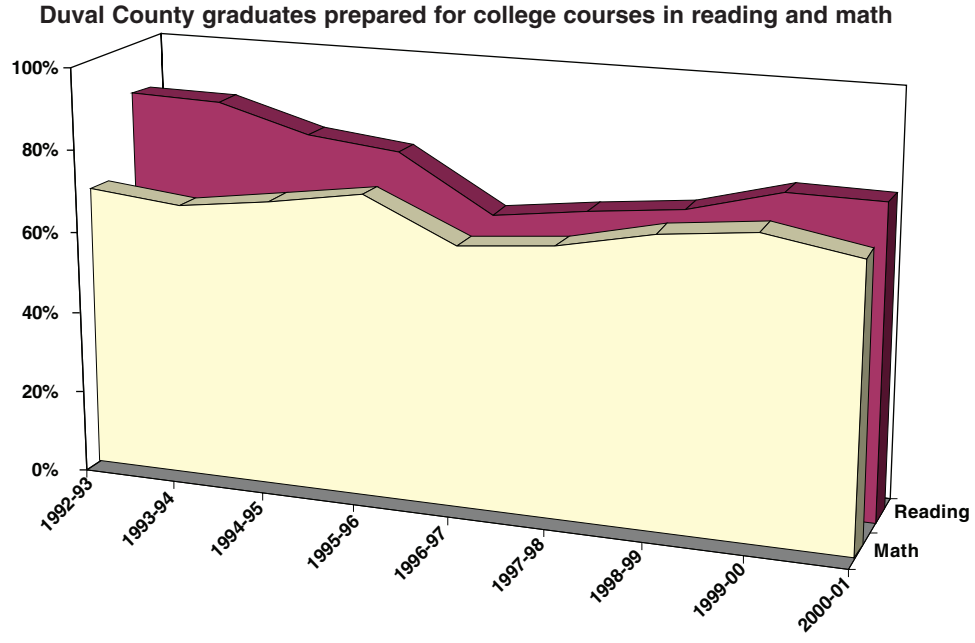
Figure 21: Different Indicators Used to Measure the Success of Public Schools in Jacksonville, Florida



Source: Florida Department of Education. Before 1998, the graduation rate was measured by comparing graduating seniors to the total number of students entering ninth grade four years earlier. In 1998, the State of Florida began measuring the number of students who graduate high school within four years, as tracked by student ID numbers. An additional four to five percent of students take five years to graduate from high school, and are not included in the official graduation rate.



Source: Florida Education and Training Placement Information Program



Source: Jacksonville Community Council, Inc.

In addition, in some cases, stakeholders have debated whether to express indicators in positive or negative terms. During the development of the Boston Indicators Project, for instance, organizers avoided using deficit, or

negative, measures, such as the prevalence of school violence. Instead, the system used indicators expressed in terms of desired, positive objectives, such as graduation rates. Similarly, the New York City Social Indicators comprehensive system elected to report almost exclusively on conditions that are related to positive objectives. Baltimore's Vital Signs system reports on births at satisfactory weights—as an indicator of maternal and child health—rather than low birth weight births, which is an indicator of maternal and child risk.

Some organizations have sought to involve a wide community of public and private stakeholders in developing and revising their indicator systems, particularly those with a community-wide focus. For example, Baltimore's Vital Signs system included 200 residents of the city and over 200 other leaders from various communities (e.g., business, funders, and policy makers) in their indicator selection process. However, officials cautioned that when indicator systems involve a diverse group of stakeholders, it is important to build sufficient time into the process of selecting indicators to allow stakeholders to address differences and reach consensus, and it usually is an iterative process. The process of identifying and agreeing on indicators took over six months for both the Boston Indicators Project and the Compass Index of Sustainability in Orange County, Florida. Developing consensus necessitated a series of large and small community meetings along with reaching agreement among various committees of public and private stakeholders. The officials believed that the inclusive nature of the process vastly increased the potential users of a system as well as its overall quality. They told us that bringing various groups or individuals into the process and involving them in its development and evolution makes these groups and individuals more likely to use indicators regularly, and encourage others to do so as well.

Organizers of many of the comprehensive indicator systems we studied also found it challenging to limit the total number of indicators included in the system. In order to reach agreement and limit tensions among stakeholders, one tendency can be to simply increase the number of indicators so most of the stakeholders are content because their preferred indicators have been included. However, doing so can make the system unwieldy and overly complex, thereby decreasing the chances it will be used and referenced by policymakers, the media, and others who often prefer a limited, simple set of key indicators that they can monitor over time. Managers of indicator systems and experts emphasized that, to the extent possible, a system should try to keep the total number of indicators to a minimum. Some systems have put strict limits on the number of

indicators right from the start. For example, the North Carolina Progress Board, which oversees the statewide North Carolina 20/20, limits the number of indicators to four for each of its goals, although it is continuing to refine goals and performance targets.

In some cases, indicator systems have added more indicators over time as updates occurred, only to later go through a simplification process based on feedback from users.

The EU recently redesigned its European Structural Indicators system to improve its effectiveness in (1) monitoring and reporting on progress being made toward the Lisbon Strategy's economic, environmental, and social goals and (2) encouraging leaders of member countries to take action to meet those goals. The number of indicators had increased over time and some of the indicators changed from year to year. Leaders from member countries had expressed concern that the growing number of indicators made it difficult to identify and focus on the most important indicators for effectively monitoring emerging trends over time. To address these concerns, the EU decided to identify and report on a limited number of 14 headline indicators, as shown in table 5. The number of structural indicators included in the 2004 annual report was reduced from 42 to 14 indicators so that country leaders could more easily focus their attention on and understand progress toward goals. In addition, these indicators have been fixed for a three-year period to facilitate benchmarking and monitoring. The full set of indicators is still available online to those users who want more detail.

Table 5: European Structural Indicators—Headline Indicators

• GDP per capita	• Business investment
• Labor productivity	• At risk of poverty rate
• Employment rate	• Long-term unemployment rate
• Employment rate of older workers	• Dispersion of regional employment rates
• Educational attainment (20-24)	• Greenhouse gas emissions
• Research and development expenditure	• Energy intensity of the economy
• Comparative price levels	• Volume of freight transport

Source: European Commission.

According to the officials we interviewed, using a set of selection criteria all stakeholders agree to in advance helps ensure that the indicator selection process works effectively from the outset and keeps the total

number of indicators under control. Applying these criteria can help facilitate decisions not to use some of the potential indicators right from the start, and it can also be used to rank a possible list of indicators. Many of the groups we reviewed have developed such criteria, and from these, we identified six common criteria used for selecting indicators. Specifically, selected indicators should be

- relevant to key issues, policies, or goals,
- easy to understand and meaningful to a variety of audiences,
- drawn from reliable sources,
- available from existing sources or not resource intensive to collect,
- updated regularly, and
- comparable across geographic areas or various population groups.

Obtaining Indicators or Data for the System

Challenges related to obtaining indicators, or aggregating data to compute them, are particularly critical because most comprehensive key indicator systems rely heavily (or in many cases exclusively) on indicators and data that are already available from other public and private organizations. Specifically, officials identified challenges in (1) obtaining existing indicators or data from the organizations that collect them, (2) addressing quality or comparability problems, and (3) finding that indicators or data are not available to measure key issues or trends.

Obtaining Existing Data

Organizers of comprehensive key indicator systems have encountered challenges in obtaining existing indicators or data to compute the indicators from entities that collect them, particularly when these data have not been previously or routinely released to the public or posted on the Internet. System organizers told us that such challenges are most prevalent at the beginning of a system's development and experienced primarily by systems that are not officially part of a governmental unit. For example, Baltimore's Vital Signs effort had difficulty obtaining data from the city's police department and public school system, although the problems were eventually resolved through negotiation with key officials. The Orange County, Florida, Compass Index of Sustainability also experienced problems in getting data from agencies, although once the system's first report was released, agencies and local leaders benefited

from its use and are now more supportive. Officials said that a lack of cooperation from data producers stemmed from concerns that the data might be used in unintended ways or would be used to assess an agency's operations; limited time or resources to make the data more useable to an indicator system; and the data producers' concerns about privacy.

Some system organizers said that an effective way to increase cooperation by data producers is to include them as key stakeholders in the design and implementation of the system, including the process of selecting the indicators. One system established formal memorandums of understanding. Indianapolis's Social Assets and Vulnerabilities Indicators (SAVI) system negotiated and ratified agreements with its data providers—laying out terms and conditions for both parties as to what the organizations will provide and when and how the data will be used—in order to forge a formal, ongoing relationship. Further, the Hillsborough County Community Atlas system conducted an assessment (involving public and private organizations) to determine data needs in the community and the capabilities of local organizations to contribute to a Web-based data sharing system.

Addressing Quality or Comparability Issues

The indicator systems we reviewed across the United States rely, for the most part, on data producing organizations to ensure that they are providing valid, quality data. Some system managers told us that they sometimes try to work with agencies to improve data quality or encourage them to collect other types of data. Indicator systems generally have limited data quality control processes. For example, managers of the Southern California Association of Governments' State of the Region system told us they have set the standard that they will only accept indicators and data from official sources—particularly government agencies or organizations with track records of producing reliable data.

Organizers of comprehensive key indicator systems have encountered quality and comparability problems that prevented the use of some indicators without devoting substantial resources to improve the quality and comparability of the data. In some cases, reliable, quality data are simply unavailable. The Jacksonville, Florida, Indicators for Progress system, for example, found it difficult to obtain reliable measures of water quality in the region.

Another problem faced by system managers has been that available data have been collected by different agencies or jurisdictions, and in some instances these agencies and jurisdictions have not used common or

consistent definitions or units of measurement. As a result, much of this information becomes unusable or irrelevant in a comprehensive key indicator system. The EU continually faces problems trying to harmonize indicators across countries and utilize consistent terms and concepts of measurement, which tend to vary by country. The international statistical community, including the OECD, IMF, World Bank and UN, has ongoing efforts aimed at improving the comparability of indicators.

Further, sometimes data are not disaggregated to the smaller geographic levels that systems want to report on, or they are not disaggregated by other socioeconomic variables of interest, such as race, age, or gender. For example, in the case of the Boston Indicators Project, the police department reported crime statistics by district or precinct, using four-block areas, while educational data were available by neighborhood or school. This made it difficult to analyze possible interrelationships between crime and educational factors.

Lack of Available Indicators or Data

In some instances, the indicators necessary to measure key issues are not available at all or are not available in a timely fashion. These gaps are frequently identified during the initial development of indicator systems. The most commonly identified areas where gaps exist across the indicator systems we reviewed were health insurance and health care, child care, the aging population, crime, and educational data, as well as some topical areas in the environmental domain. In addition, one of the major sources of demographic information is the decennial U.S. census, which is conducted once every 10 years. Many subnational indicator systems in the United States rely heavily on the Census Bureau, but by the end of the 10-year period, these data may significantly lag behind actual changes in the population. Officials provided several specific examples of gaps they had identified, such as those listed below.

- The Portland Multnomah County Benchmarks system officials reported that data were not available for about 12 issues that they would like to include. They hope to be able to find data and are encouraging agencies and other organizations to collect data on issues such as the environment. According to organizers of this system, over the past several years, they have been able to whittle the number of data gaps from 20 down to 12, as local agencies have improved their performance measurement efforts.

- The Compass Index of Sustainability in Florida's Orange County wanted to report on a variety of issues related to its large retired and aging

population. In the process of developing this system, however, organizers found that the county did not have sufficient data to monitor the health and well-being of the aging population. The first indicator report by this system commented on this lack of data, which resulted in improved data collection efforts throughout the county, including an extensive survey of the aging population in Orange County.

To overcome the challenge of indicators or data not being available, or not being regularly updated, organizers of indicator systems have turned to several remedies to collect their own data or spur additional data collection efforts. For example, the Maine Economic Growth Council (MEGC), which oversees the statewide Maine's Measures of Growth system, has developed proxy, or substitute, indicators on occasion. In one instance, MEGC used an indicator on the estimated loon population as a proxy measure of the extent of contamination in Maine's lakes. Also, data for 8 of the 61 indicators that the MEGC system tracks are derived from surveys of citizens and businesses that it conducts itself.

The U.S. Census Bureau is in the process of implementing the American Community Survey, which will collect and disseminate census information more frequently. Most U.S. subnational indicator systems currently rely heavily on the "long form" data from the decennial census. Every U.S. household receives the short form, which has limited utility for indicators, as it includes only the demographic basics of race, ethnicity, and age. In the census year, one in six households receives the long form, which asks a detailed series of questions regarding such topics as income, occupation, education, and journey to work. This is valuable information to support the creation and maintenance of indicators at all levels of society. The U.S. Census Bureau American Community Survey (ACS) provides data annually and has been implemented on a nationwide basis since 2000 for all states and for all counties and metro areas with more than 250,000 residents. Current plans, contingent on continued congressional support and funding, could quadruple the sample size in 2005 and eventually allow for presentation of data at the census tract and block levels. At present, 800,000 households are surveyed annually; in 2005, the number is expected to increase to 3 million. A substantial investment in data, such as for the ACS, could make even more information widely available to support the development of comprehensive key indicator systems in the United States.

Effectively Leveraging Information Technology

The development of advanced computer information technologies has transformed the tools available for comprehensive key indicator systems, although the extent to which various systems have leveraged these technologies varied. According to many of the system managers, effectively using technology, including the Internet, has made it possible for comprehensive key indicator systems to transfer data quickly, made key information more widely available, and helped foster dialogue among groups with mutual interests. For example, on its Web site, Indianapolis's SAVI presents a set of tools that enable users to interact with the data in different ways. Figure 22 lists the various tools on SAVI's interactive Web site.

Figure 22: SAVI Interactive Tools

Source: The Polis Center.

Note: See http://www.savi.org.

Although new information technologies may make it faster, easier, and cheaper to collect and share data, gaining access to new technologies can

be costly. Costs were one factor that limited the extent to which some organizations have been able to take advantage of new technologies, and some systems had to scale back on planned technology initiatives due to resource constraints. For example, the statewide Social Well-being of Vermonters system briefly used Geographic Information Systems (GIS) to display the results of some indicators (e.g., children's health indicators were analyzed by county), but the effort was put on hold mainly because of resource constraints.

However, several systems have been transformed over time by new technologies, and many of the systems' officials told us that they would like to do more innovative things than they are doing now. The evolution of the Minnesota Milestones state-level system illustrated how improved information technologies transformed indicator systems' operations over time.[6] The system progressed from issuing a printed report to an interactive system where individuals can manipulate the data themselves, including sorting them by geographic area, subject, or indicator and creating customized reports.

Organizers of some comprehensive key indicator systems see potential in other developing technologies. For example, the Boston Indicators Project expressed interest in work being done by organizations such as the Massachusetts Institute of Technology on data warehousing and the interoperability of different data systems to facilitate sharing between systems. The Boston Foundation is also collaborating with Boston's Metropolitan Area Planning Council to develop a regional data repository project for community planning and research, which would create a deep, searchable database (a data warehouse and portal) with mapping capacity. Other officials are looking into improved tools for developing interactive query capabilities so that users of indicator Web sites could directly manipulate and analyze the data behind the indicators.

[6] Several other comprehensive indicator systems also maintain interactive Web sites where users can search for data by different characteristics, such as the Boston Indicators Project, where Web site users can pull out data by sector, or by one of the crosscutting filters (including race and ethnicity, children and youth, sustainable development, and Boston neighborhoods).

Comprehensive Key Indicator Systems Show Evidence of Positive Effects

The diverse systems we reviewed showed evidence of common types of positive effects, such as improved decision making, enhanced collaboration on issues, and increasing the availability of knowledge. Even though we found anecdotal evidence of positive effects on their respective jurisdictions, this information must be interpreted with a number of considerations, which are discussed below.

- These positive effects are a function of how different stakeholders use indicator information along with other resources and information to inform their decisions made within the context of various political, economic, and other factors. Because the information they produce can be used by individuals, the media, businesses, nonprofits, interest groups, professionals, and governments (among others), the variety of uses and possible benefits is theoretically wide ranging.

- Determining a cause and effect relationship between the use of indicator systems, better decisions, and improved problem solving is beyond the scope of this report. On the basis of common sense, it is not an unreasonable link to make. But in reality, so many different factors affect decision making that teasing out the role of indicator systems as a single causal factor necessitates further research.

- We did not perform complete cost, benefit, risk, and options analysis for any of the systems reviewed. Nor did we find that other systems had done so. Hence, the question of how to evaluate the value of these systems and what their value is relative to other possible uses of public and private funds remains open.

In spite of these analytical difficulties, our work shows that numerous investments have been made and sustained over significant periods of time. Specifically, comprehensive key indicator systems have

- enhanced collaboration among diverse parties to address public issues;

- provided a tool to encourage stakeholders to make progress toward economic, environmental, and social and cultural outcomes;

- informed and facilitated policy making, program planning, fiscal decision making, and improved research; and

- increased knowledge about key economic, environmental, and social and cultural issues, as well as the conditions of certain populations.

It can take years for an indicator system to become a widely used and effective tool for identifying and monitoring conditions, and tracking long-term trends that are most important to citizens of a jurisdiction. For example, based on indicator results that showed declining graduation rates, leaders of the Indicators for Progress system in Jacksonville, Florida, partnered with a variety of mutually interested business leaders and school system officials to press for educational reform in that jurisdiction. Their collaborative efforts resulted in the county school board implementing several new initiatives.

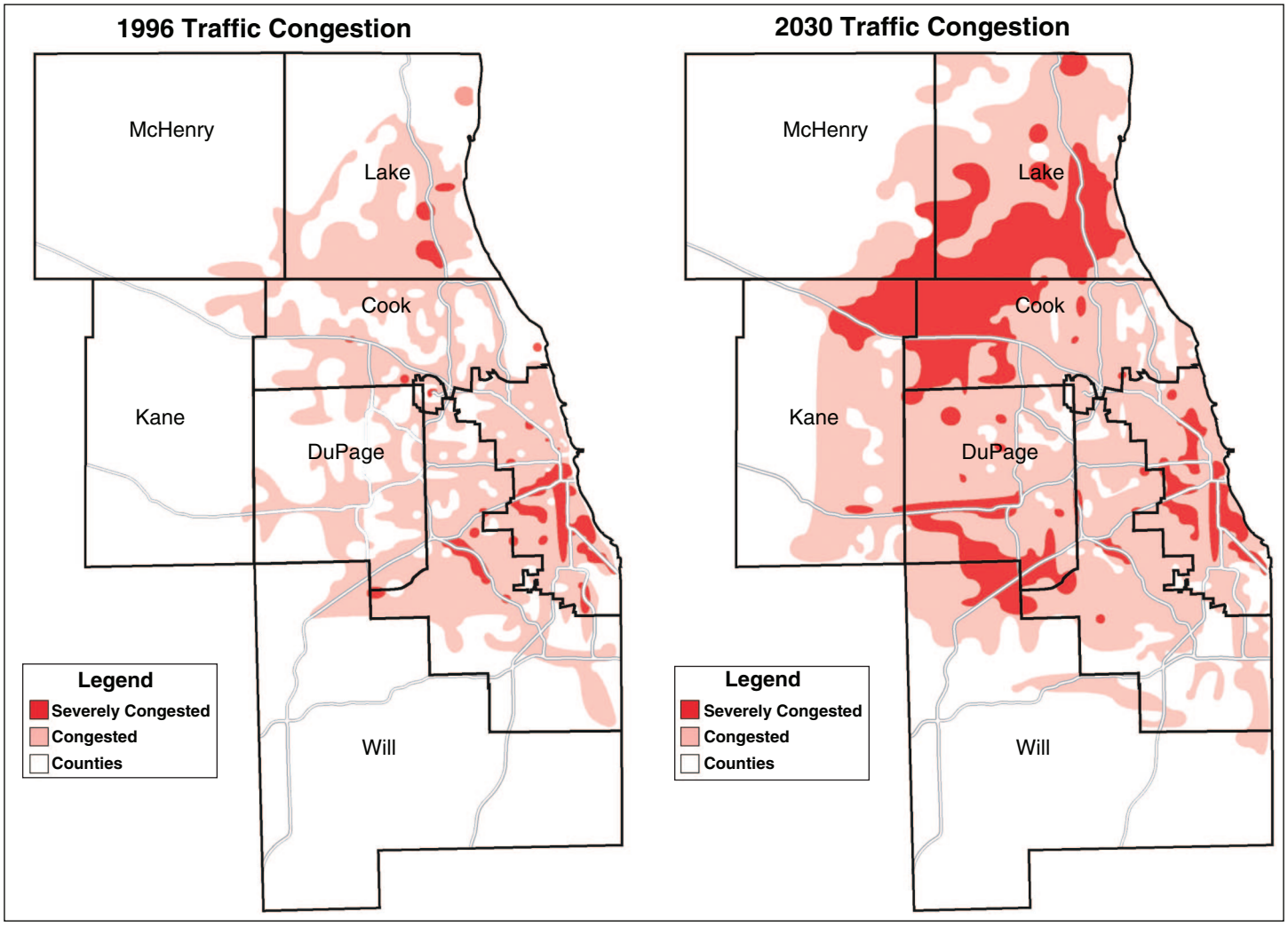
Enhancing Collaboration to Address Public Issues

Comprehensive key indicator systems can reveal significant public policy problems and help to address them by facilitating collaboration among various parties inside and outside of government. These systems serve as useful tools for highlighting economic, environmental, and social and cultural trends to broader audiences that can include elected officials, agency heads, the media, and the public. The more focused attention that an indicator system or corresponding report can bring to certain conditions may bring increased pressure to bear on diverse parties in the public and private sectors to collaborate on strategies to address them. Some indicator system managers have even convened groups that work on collective strategies to address areas of common interest. Accordingly, these kinds of efforts help break down traditional boundaries between various actors and organizations and encourage recognition of interconnections among various domains as well as ways that crosscutting approaches could provide solutions to long-term challenges. Some key illustrations follow.

Chicago Metropolis 2020. This indicator system's report highlighted the extent to which the Chicago metropolitan region suffered from severe traffic congestion. Without the profile and attention given to it by a key indicator system, information on traffic congestion might not have had the same level of impact on public debate. Figure 23 presents actual traffic congestion levels for 1996, as well as projected levels for 2030 if current trends continue without intervention. The report and subsequent public attention was a key factor that led to the governor signing legislation to create a task force, whose recommendations are aimed at transforming transportation and planning agencies into a more coherent regional system that considers the impact of decisions on other jurisdictions and a broader

range of economic, environmental, and social and cultural impacts. Because authority over transportation policy in the region was fragmented along the lines of several state agencies and a variety of city and suburban governments, until this task force, no single entity, including the city of Chicago, had been able to act on these problems in a holistic and crosscutting manner.

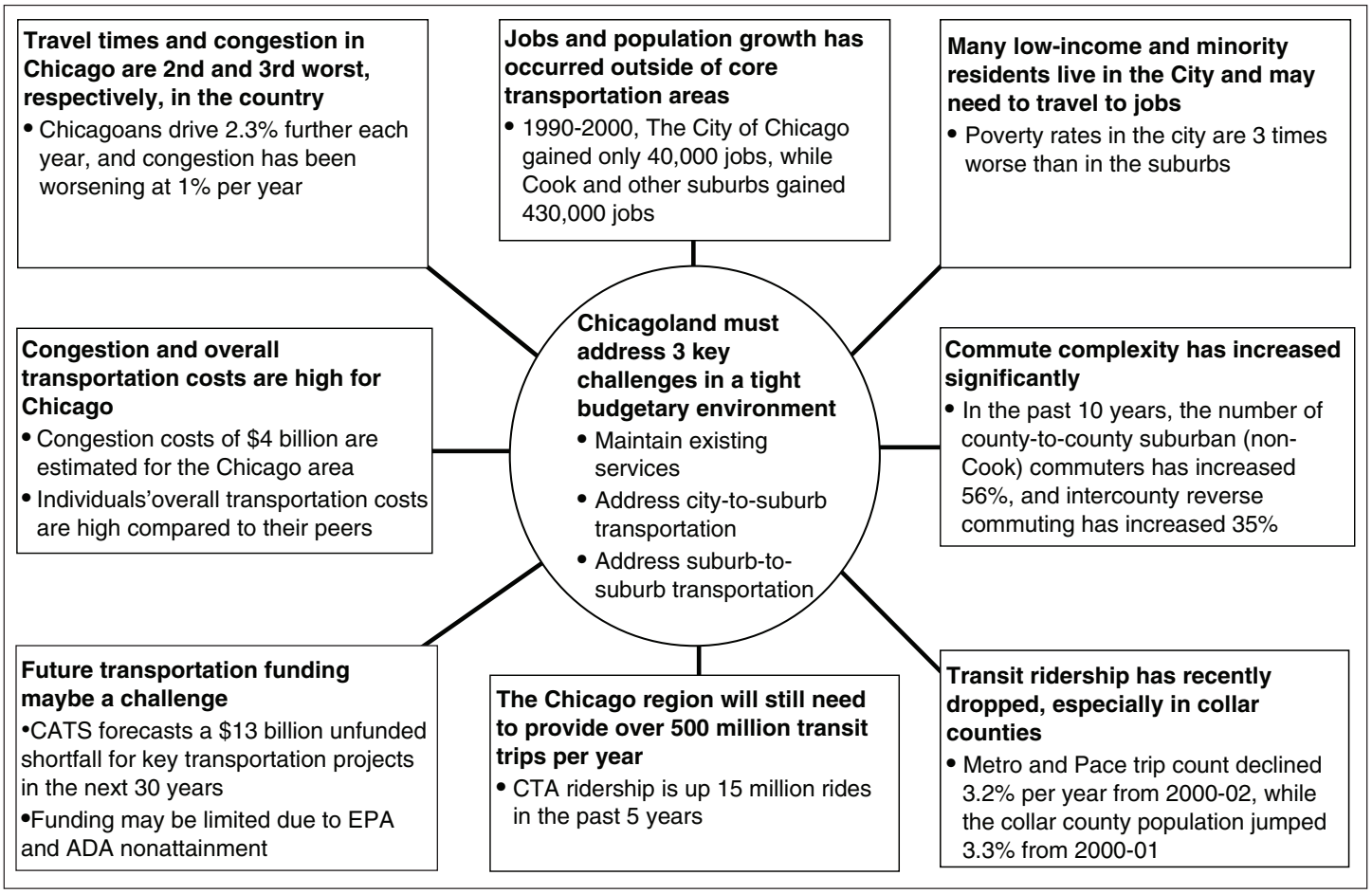
Figure 23: Traffic Congestion in Chicago—Actual 1996 and Projected 2030



Source: Chicago Metropolis 2020.

Chicago Metropolis 2020 continues to monitor traffic congestion and urban transportation trends, as illustrated by testimony presented by the organization's leadership to the Regional Transportation Task Force in early 2004 (see fig. 24).

Figure 24: Travel Trends Placing Stress on the Chicago Regional Traffic System



Source: Chicago Metropolis 2020.

Index of Silicon Valley. This system highlighted shared regional problems that negatively affected economic growth by hindering new businesses and development. The Smart Permit Initiative was organized to tackle these problems. The organizers of this initiative worked with business and government leaders to create a regulatory streamlining

council whose efforts led to officials in 27 cities and 2 counties agreeing to standardize their building, plumbing, electrical, and mechanical codes and related regulatory requirements for new businesses. The council agreed to reduce approximately 400 local amendments to these codes to 11. According to officials, these changes have reduced confusion in building codes among cities and counties, saved businesses time in getting products to market, and lowered construction costs for new projects.

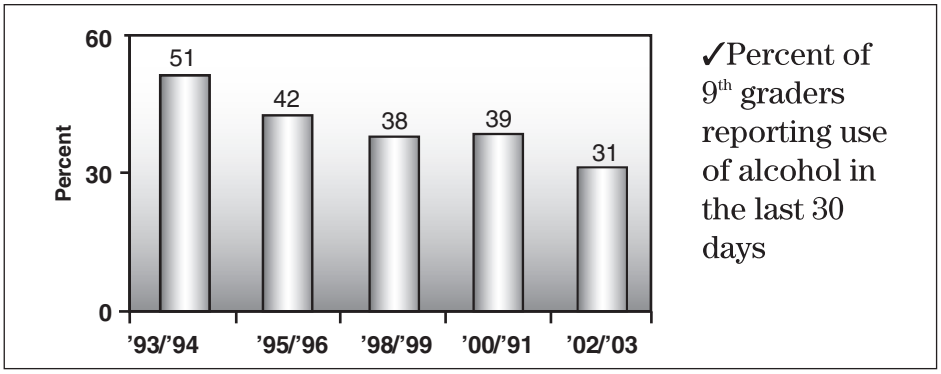
Indicators for Progress (Jacksonville, Fla.). The leader of this system—the Jacksonville Community Council, Inc. (JCCI)—encouraged regional officials and members of the local media to focus on significant problems in the county's public school system that had been highlighted by its indicator report. JCCI leaders produced a separate report in 1993 on the implications of Jacksonville's public education problems and recommended ways to address them.[7] The effort tried to demonstrate linkages such as those between indicators for education excellence and other quality of life indicators, including job growth and crime. Using these findings, JCCI leaders initiated a high degree of collaboration among public and private officials. Eventually, its report and several years of advocacy by JCCI officials, citizen volunteers, business leaders, public school officials, and others led the school board to create a commission that outlined over 150 recommended improvements, many of which have been put into action.

Santa Cruz County Community Assessment Project (CAP). This system was designed to monitor and improve quality of life in this county in California and reports on 128 indicators related to the economy, education, health, public safety, social environment, and the natural environment. A summary of the system's report is sent to every household in the county. CAP results led to eight new community-wide efforts, including projects to reduce child injuries, child abuse and neglect, school absenteeism, juvenile arrests, and childhood obesity. One key project was to limit youth alcohol and drug abuse. The CAP had shown growing alcohol and drug abuse by youth in the Santa Cruz area, which affected other conditions measured by indicators, such as school achievement, college readiness, and crime. After spotlighting the connection between these indicators and securing communitywide recognition of the problems, CAP leaders established a coalition of 110 representatives from public schools, county services, the

[7] Jacksonville Community Council, Inc., *Public Education: The Cost of Quality* (Jacksonville, Fla.: 1993).

county sheriff's department and four city police departments, businesses, public officials, not-for-profit organizations, parents, and students. The coalition created a coordinated alcohol and drug prevention strategy for Santa Cruz. Following collaborative efforts to implement this strategy, CAP indicators showed that juvenile felony drug arrests, juvenile arrests for driving under the influence, as well as youth alcohol and drug abuse, started to decline (see fig. 25).

Figure 25: Percentage of 9th Graders Reporting Use of Alcohol in the Last 30 Days



Source: Santa Cruz County Assessment Program.

Providing Tools to Encourage Progress

Among jurisdictions that established a set of desired economic, environmental, and social and cultural outcomes in the form of goals or targets or shared aspirations for the future, those that used comprehensive key indicator systems found them to be effective devices for monitoring and encouraging progress toward these outcomes. Some jurisdictions used comprehensive key indicator systems as accountability tools to assess the extent to which various parties, including government agencies, not-for-profit organizations, and businesses, contributed to achieving results. Indicator systems and their reports have also been used to highlight instances when progress is not being made for a broader audience and to encourage interested parties and stakeholders to take action. Some key illustrations follow.

Santa Monica Sustainable City. This comprehensive key indicator system for the City of Santa Monica, California provided information on a range of indicators that officials used to assess the extent to which city departments and others contributed to a 1994 citywide plan for reaching

sustainable development goals. Indicators are used for assessing both city government operations and the community as a whole in achieving these community-wide goals. In response to what the indicators were showing, the City Council developed a service improvement program to increase bus ridership. They also surveyed the public to identify needed improvements in services. The city's transportation department restructured its bus program along these lines and eventually increased bus ridership by 25 percent, 15 percent greater than targets established prior to this coordinated effort.

Oregon Benchmarks. The State of Oregon's comprehensive key indicator system continues to evolve as a tool to help agencies collect and report information to the legislature and the governor. The use of these indicators can help demonstrate agencies' contributions toward statewide goals set forth in Oregon Shines and enhance agencies' accountability for achieving these goals. Chaired by the Governor, the Oregon Progress Board sets up the system fore reporting progress on performance measures that are linked to benchmarks. State agencies are required by law to link their annual performance measures to the Oregon Benchmarks. The intent is to better align agencies' policies so they work in concert and focus on moving the indicators in a desired direction. This provides a mechanism to help encourage state officials to focus on each agency's contributions toward key objectives and, in some cases, has spurred policy discussions from a more holistic, integrated perspective. As shown in figure 26, for example, numerous state agencies contributed to a benchmark related to child abuse and neglect, demonstrating the shared nature of many challenges.[8]

[8] This graphic was presented in a special publication of the Oregon Progress Board—the 2001 Benchmark Blue Book—which has not been updated since then because Oregon has moved to a new performance measure reporting system.

Figure 26: Oregon State Agencies Whose Programs Are Linked to Child Abuse or Neglect

50 **Child Abuse or Neglect**

Number of children, per 1,000 persons under 18, who are: a. neglected/abused b. at a substantial risk of being neglected and abused

Lead Agency

Services to Children & Families Division

Primary Links

Police, Department of State
Services to Children & Families Division
Children & Families, Commission on
Children's Trust Fund, Board of Trustees
Adult & Family Services Division

Secondary Links

Criminal Justice Commission, Oregon
Health Division
Community Partnership Team
Youth Authority, Oregon
Employment Department
Occupational Therapy Licensing Board
Dentistry, Oregon Board of
Pharmacy, Board of

Source: Oregon Progress Board.

European Structural Indicators. This system provides a tool that is used to determine how well member countries are meeting policy goals spelled out in the 2000 Lisbon Strategy for the economic, environmental, and social renewal of the EU. When the EU's executive apparatus determines, based on a review of the related indicators, that a member country has not made sufficient progress toward a particular goal, it can recommend specific actions in the areas of the economy and employment to be undertaken by a particular country to help further its progress. In addition, each country's progress—or lack thereof—is spotlighted in an annual, publicly released report.[9] EU officials told us that recommendations have been adopted by member countries and have led to changes in those countries' policies. For example, in response to EU recommendations, Spain has agreed to implement new policies to help raise its employment rate among women, which had been much lower than that for men. This would contribute to the EU goal of reducing social and economic disparities among men and women. Further, officials from the EU and some member countries told us that merely publishing the information and providing the annual report to the leaders of all member countries helps influence them to improve performance, thereby contributing to the improved performance of Europe as a whole and in relation to other nations to which EU members compare themselves, including the United States.

Informing Decision Making and Improving Research

Various public and private organizations use indicator systems to facilitate better-informed and more fact-based policy making, program planning, and fiscal decision making, as well as to improve the quality of research on key economic, environmental, and social and cultural issues. Indicator systems facilitate these processes by bringing together relevant information in a centralized, reliable location, and allowing leaders and citizens to easily access it. Because comprehensive key indicator systems provide indicators on a wide range of topical areas, they enhance opportunities to identify interrelationships and analyze crosscutting issues. These systems also provide the capacity for all leaders to work from the same information set and make decisions based on it. Finally, a system can serve to gain economies of scale by eliminating the need for other organizations or individuals to spend time and resources pulling together information from

[9] Commission of the European Communities, *Report from the European Commission to the Spring European Council: Delivering Lisbon Reforms for the Enlarged Union* (Brussels: 2004).

numerous disparate sources. Several examples from our fieldwork illustrate these positive effects.

Boston Indicators Project. This system provides comprehensive information on Boston and many community-level organizations have used its Web site and reports to better inform their decision making and program planning. For example, grant-making organizations, such as the project's main organizer, the Boston Foundation (Foundation) itself, have used this indicator system when reviewing proposals to verify the data presented in the proposals as well as for making decisions. One of the factors that the Foundation considers when assessing the merits of grants proposals include whether the proposal targets a topic for which indicators show negative trends or is aimed at filling existing knowledge gaps. Similarly, grant seekers may use the indicators when selecting topics for research when they realize that grant managers' standard operating practices include referring to this system regularly. Accordingly, the Boston Indicators Project saves all of these organizations and individuals time and money because they do not have to collect or aggregate this information on their own. More importantly, it facilitates coordination of research and helps shape fact-based decision making that is focused on meeting priorities and contributing to continued progress.

In one specific example related to the Boston Indicators Project, leaders of the Nuestra Communidad Development Corporation (Corporation)—dedicated to improving the Roxbury section of Boston—used an array of the project's indicators to provide evidence to a national foundation of the plight of housing units owned by senior citizens, many of which were in poor condition. The Foundation funded this proposal, and the Corporation has implemented a program that helps seniors rehabilitate housing units in Roxbury, including rentable units owned by seniors.

Social Assets and Vulnerabilities Indicators (SAVI). SAVI is used by community planners, neighborhood groups, researchers, and state and local government agencies in the Indianapolis metro area to inform policy and program planning and fiscal decision making. For example, SAVI helped the Indianapolis YMCA Board of Directors make an important funding decision by using the system's indicators. The YMCA's Board of Directors asked SAVI officials for help in applying the system's economic, public safety, demographic, and program indicators to provide input on where to locate a proposed new YMCA building. SAVI used its indicators to map areas of need and found that numerous parts of Indianapolis were equally in need of better recreation and educational facilities—that is, no

one part of the city was a clear-cut choice based on analysis of the indicators. As a result, the YMCA made a decision to not construct a single new building but instead created a "YMCA Without Walls" program offering a variety of new services throughout the city in existing facilities, such as churches, schools, and community centers. The YMCA also used SAVI indicators to determine which services to locate in various parts of the city, such as locating after-school programs in parts of the city with high concentrations of low-income children.

United Kingdom's Sustainable Development Indicators. This system's national report helped focus attention on several problems, such as the growing amount of household waste being produced in the country. The Sustainable Development Indicators reports over several years showed that household waste in the United Kingdom was growing at a rate of 2 to 3 percent per year.[10] These reports highlighted this existing indicator to a broader audience. The vast majority of this waste is disposed of in landfill sites, raising broader environmental concerns because landfills are responsible for about one-fifth of the country's emissions of methane—a major greenhouse gas that also worsens air quality. The Prime Minister eventually directed his Strategy Unit to analyze options to address these issues, and action has been taken on a number of the options outlined in the report, such as increasing taxes at landfills. Also, appropriate tasks and targets, aligned with the newly developed waste strategy, have been integrated within agency officials' performance agreements. Figures for the amount of household waste not recycled or composted saw a decrease in 2002-2003, the first decrease in recent years.

Increasing Knowledge about Key Economic, Environmental, and Social and Cultural Issues

Through the process of selecting indicators and reviewing data sources, stakeholders and organizations that manage comprehensive indicator systems sometimes identify areas in which their jurisdictions have gaps in knowledge about key economic, environmental, and social and cultural issues. In addition, comprehensive systems may highlight gaps regarding knowledge about the interrelationships among various indicators and the development of solutions to crosscutting problems. In some cases, gaps are also exposed in knowledge of the conditions of certain population groups, such as the aging population. Once the knowledge gaps are

[10] The government published a separate report in November 2002 on waste-related issues titled *Waste Not, Want Not.* Strategy Unit, *Waste Not, Want Not: A Strategy for Tackling the Waste Problem in England* (London: November 2002).

discovered, the indicator system can help spur new data collection efforts or the redirecting of existing efforts. Several illustrations are provided below.

Compass Index of Sustainability (Orange County, Florida). When developing this system, organizers identified significant gaps in the county's knowledge about its aging population, a large group in that jurisdiction. System planners discovered that agencies and other organizations did not collect basic data on the health and well-being of the aging population. The system's first report commented on these knowledge gaps and helped spur county commissioners to appoint a task force to review existing data collection efforts. This task force recommended ways to enhance information about the conditions of the aging population. More information on the aging population will soon be available from the AdvantAge Initiative Study funded by the Winter Park Health Foundation in collaboration with the Orange County Commission on Aging and the Delta Leadership Council of the Senior Resource Alliance. The survey will establish indicators that the system can continue to follow into the future.[11]

European Structural Indicators. This system has evolved through an iterative process. Each year participants identify potential indicators that need to be developed or improved in order to meet the criteria for the structural indicators. For example, the EU had noted the lack of indicators on e-commerce and requested that member countries collect new types of data. These indicators are now included in an online database of structural indicators. Eurostat has also identified 20 indicators that have yet to be fully developed.[12] The EU uses the following criteria to develop and revise its indicators. Indicators must be

- mutually consistent;
- policy relevant (linked to policy goals already established);
- easily understood by the target audience;

[11] See http://indicators.hciflorida.org/indicators.cfm?id=78 for more information.

[12] Eurostat, the EU's statistical organization, has responsibility for ensuring development of standard concepts, methods, and technical standards for the indicators; working with the national statistical offices of the member countries to obtain data; and consolidating and harmonizing data to ensure comparability across the member countries.

- available in a timely fashion;
- available for all or nearly all member countries;
- comparable among these countries as well as to external parties such as the United States;
- selected from reliable, official sources; and
- easy to collect and not unduly burdensome on member countries.

Some specific areas in which the EU would like to see progress made are innovation and research, as well as social cohesion. Although organizers of the system have sought to include relevant indicators, they found that for the most part, member countries did not collect adequate or sufficiently up to date information in these areas. To address these knowledge gaps, the EU has asked member countries to increase their collection of data on innovation and research in 2004—for example, on the amount of information technology investment and public and private expenditure on human capital—and to increase the rapidity with which this information is becoming available.

System Costs Are Difficult to Quantify

We found it difficult to discern the accurate, full costs for developing, implementing, and sustaining a comprehensive key indicator system because many of these costs do not appear as line items in the budgets of the organizations that house them. Many of the systems we studied are located in larger organizations or agencies. The managers of these systems tend to borrow or leverage staff and resources from throughout those organizations or agencies. As such, the full costs of their time and effort are not really captured. For example, managers of the Boston Indicators Project, which is housed in the larger Boston Foundation, told us that they make use of the Foundation's resources, such as working with its communications department to leverage its significant media and publishing expertise; organizers also leverage assistance from the project's partners. Further, because these systems rely primarily on indicators or data collected by others, the costs incurred by others to collect data are generally not reflected as part of an indicator system's own costs.

According to the systems we studied, cost items included printing and distributing reports, paying staff and consultants, and acquiring and managing technology, for those that employed more innovative technology.

For example, organizers of the Southern California Association of Governments' State of the Region system—which consists of governments in 8 counties, including Los Angeles County, covering a population of over 17 million people—told us that the association dedicated approximately $200,000 for its 2002 annual indicators report. Of this amount, approximately $25,000 went to printing the reports, which are distributed to various officials, academia, businesses, and nonprofit organizations in southern California—and are available to the general public upon request. The rest of the funding was dedicated to two staff members who were responsible for drafting and processing the report.

In a different instance, those responsible for Baltimore's Vital Signs system—which covers a population of over 600,000 people—told us that they had three full-time staff dedicated to the project, with an annual budget of approximately $350,000. These figures are for the organization that runs the system—the Baltimore Neighborhood Indicators Alliance—although the bulk of their work relates to the indicator system. Further, organizers told us that they receive a significant amount of in-kind support from their partners, which is not reflected in the budget. The one-time start-up costs were approximately $450,000. Baltimore's Vital Signs is an example of a system that is working aggressively with technology, in particular geographic information systems (GIS). Further, in many of the systems we studied, one to three persons were dedicated full-time to the project. For example, the Santa Monica Sustainable City indicator system is managed by one person in the city's Department of Public Works.

The Maine's Measures of Growth system further illustrates these points. The system is overseen by the Maine Economic Growth Council, which is affiliated with the broader Maine Development Foundation. The Maine Development Foundation has a board of directors drawn from its approximately 300 members, who represent companies, educational institutions, municipalities, government agencies, and nonprofit organizations throughout the state. The Maine Development Foundation has a full-time staff of nine professionals, although it makes extensive use of volunteers, loaned executives from members, and consultants to deliver its various core programs. One program director staffs the Maine Economic Growth Council and runs the Maine's Measures of Growth indicator system; that director's work is overseen by the chief executive officer of the Maine Development Foundation. More research will need to be done to understand the true costs of these systems and how they vary based on issues such as scale of population and use of technology.

Comprehensive Key Indicator Systems Have Potentially Broad Applicability

From a historical perspective, looking back at the 20th century and with potentially broad applicability during the 21st century, comprehensive key indicator systems appear to be a coherent and noteworthy development. They represent a logical next step in the evolution from indicator systems for enterprises to performance measurement systems for governmental institutions to indicator systems for entire jurisdictions. The most activity and the best organized communities of practice and knowledge sharing appear to be at the local level, where the "laboratories of democracy" can generate larger numbers of efforts at smaller, more manageable scales. However, because there is also activity at the state and national levels, more research and sharing of knowledge would be beneficial.

The Systems We Studied Appear to Be a Next Step in the Evolution of Measurement Practices

From the beginning of our republic, ideas about measuring conditions and using information in a democracy were embedded in notions ranging from the U.S. decennial census and the need for the president to report on the state of the union, to wider ranging rights concerning freedom of speech and the press. It was in the 20th century that indicators in the major topical areas and domains were initiated and fully developed through public and private cooperation. Many of these bodies of knowledge have matured over periods ranging from 50 through 75 years into the indicators we now read about in the newspaper every day.

Comprehensive key indicator systems started their evolution later. Private sector organizations, academic institutions, and individual authors have, from time to time, addressed issues of how to assess the position and progress of a jurisdiction, whether it be a city or a nation. An example is the widely read volume *The State of the Nation* by Derek Bok, President Emeritus of Harvard University.[13] Sustainable, repeatable key indicator systems have appeared in different jurisdictions with sets of indicators grounded in an intellectual framework, a diverse set of multi-sector stakeholders, a group of products and services and institutional support to sustain and evolve them.

For at least two reasons, the emergence of these comprehensive indicator systems represents a next step in the evolution of measurement and information management practices. First, they take advantage of an

[13] Derek Bok, *The State of the Nation* (Cambridge, Mass.: Harvard University Press, 1996).

innovative set of new information technologies; and, second, they build on previous efforts at smaller scales and move to higher scales.

Technology as an Enabling Factor in Indicator System Development

Changes brought about by the revolution in distributed data collection, management, and dissemination technologies over the last two decades have altered the economics of information. Prior to the Internet, the Web, and the whole set of distributed, open systems that have been developed, the aggregation, management, and dissemination of information from disparate sources required a substantial investment. In the last two decades, the marginal cost of dissemination has decreased. This means that more groups can take advantage of investments in sophisticated measurement and information systems that would not have been feasible before. The change in the economics of information dissemination has created meaningful new opportunities to increase the return on investments in data that have already been made by dramatically increasing the number of people who have easy access to it in a usable form.

Measuring Jurisdictions as the Next Step after Measuring Institutions and Governments

At the institutional level, the private sector, and business enterprises in particular, were the first to begin the process of systematically measuring their performance, which became widespread during the era of Total Quality Management in the 1970s and 1980s and then developed into the International Standards Organization and "Six Sigma" practices that feed the executive information and financial systems in wide use today.[14] Starting in the 1980s and 1990s, this movement spread to government entities, which were arguably more complex to measure and, at times, larger in scale than business enterprises.

[14] The term "Six-Sigma" is now generally used throughout the business community to refer to comprehensive quality assurance systems that are focused on continuously increasing the quality of an institution's products and services through ever more sophisticated systems of quantitative measurement and organizational improvement.

At the government level, examples of measurement reform are the Chief Financial Officers (CFO) Act of 1990[15] and the Government Performance and Results Act of 1993 (GPRA).[16] The CFO Act spelled out an ambitious agenda to help the government remedy its lack of timely, reliable, useful, and consistent financial information. For example, it requires agencies to prepare audited financial statements annually, thereby improving accountability over government operations.[17] Among the purposes of GPRA cited by Congress was to improve federal program effectiveness and service delivery by promoting a new focus on results, service quality, and customer satisfaction by setting program goals, measuring performance against goals, and reporting publicly on progress.

Moving beyond enterprise and government indicator systems are indicator systems covered in this report at the jurisdictional level. These are systems that substantially increase in scale and complexity as they attempt to assess the position and progress of multi-sector, multi-entity jurisdictions (e.g., a city, a region, or a state). As mentioned previously, this next step by definition creates a wide range of potential audiences and uses of an indicator system because of the many different types of individuals, institutions, and communities in a jurisdiction as opposed to a single business, nonprofit organization, or government agency.

Working Systems Exist at All Levels of Society and Show Evidence of Replicability

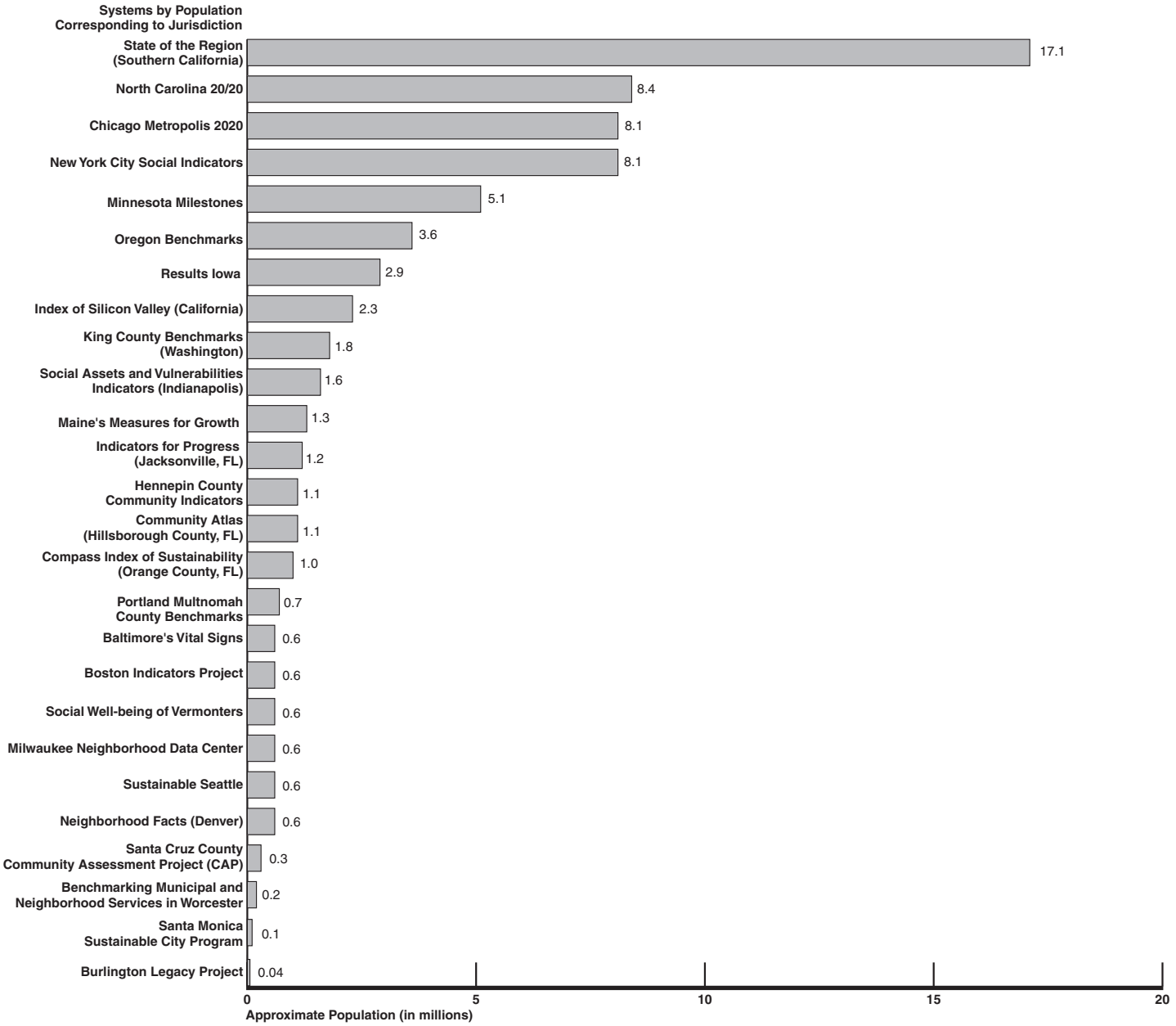
We found working systems in jurisdictions at all levels of society, from neighborhoods to nations, with millions of people. We studied a set of systems for local, state, or regional jurisdictions covering about 25 percent of the U.S. population. Figure 27 shows the population coverage of the systems we studied in the United States at the subnational level. Although each system faces unique challenges, has a unique history, and exists in a unique geographic, political, cultural, and situational context, the existence of such systems with similar features suggests potential applicability elsewhere.

[15] Pub. L. No. 101-576, § 303.

[16] Pub. L. No. 103-62, 107 Stat. 285 (1993). See GAO, *Results-Oriented Government: GPRA Has Established a Solid Foundation for Achieving Results*, GAO-04-38 (Washington, D.C.: Mar. 10, 2004).

[17] The Government Management Reform Act of 1994, Pub. L. No. 103-356, § 405; the Federal Financial Management Improvement Act of 1996, Pub. L. No. 104-208, § 803; and the Accountability of Tax Dollars Act of 2002, Pub. L. No. 107-289, § 2, have expanded on the reforms enacted by the CFO Act.

Figure 27: Population Coverage of Select Comprehensive Key Indicator Systems in the United States



Source: GAO.

There are most likely more systems in existence that we were not able to include. At local levels, there is evidence of replicability, as jurisdictions

copy, adapt, or purchase ideas, civic processes, indicator frameworks, or technology from others. These networks have focused on sharing knowledge and practices about indicator systems.

This replicability is occurring not only through the well-established community and neighborhood networks, but also at other levels. For example, the Boston Indicators Project is not only developing technology that could be used by other cities and metropolitan regions, but it has garnered interest from around the country in its intellectual framework, indicator set, and advanced product or service design. The City of Dallas, with different demographics than Boston, is using many of the Boston features in developing its own indicator system through a public-private partnership (Dallas Indicators), while adding many elements that fit its population, geography, and political and economic structures.[18]

This notion of potentially broad applicability is important because it is likely that in spite of the progress made to date, many jurisdictions in the United States do not yet have such systems. If these systems eventually demonstrate a high net risk-adjusted return on investment, and continue to show replicable features and develop more organized networks for their propagation, then the potential benefit for the nation could be large.

Evidence Suggests That a System for the United States as a Whole Is Potentially Feasible

The existence of meaningful activity at all levels and general features that demonstrate transferability suggests the potential feasibility of such a system for the nation as a whole. The fact that other developed nations have such systems also demonstrates feasibility. The following factors specifically suggest potential feasibility for a U.S. national system.

Demonstrated Scalability. We have found working systems at all levels of society, including neighborhoods, communities, cities, regions, states, and nations, as already mentioned. They also exist at the supranational level (e.g., the European Union) and for the world as a whole (e.g., the United Nations' Millennium Goals). In one example that bears further research, the OECD plays a role for its member nations comparable to

[18] The Dallas Indicators system is a comprehensive database of key community indicators. Its is an effort led by the Dallas Foundation and the Foundation for Community Empowerment, in collaboration with the Boston Consulting Group, Belo Corp., and the Dallas Citizens Council.

what might be expected of an institution dedicated to a comprehensive key national indicator system in the United States.

Evidence of Transferability. We have found elements of existing systems that are being adapted by other entities (e.g., Dallas and Boston) as systems share and transfer practices, processes, information, intellectual frameworks, and/or technology to to better meet specific needs and interact with one another, especially at the local levels. Also, as a result of the EU adopting policies, such as the Lisbon Strategy and Sustainable Development, which require member countries to provide standardized data for indicator systems to measure progress in achieving agreed-upon goals, many members are now developing related goals and indicator systems for their own countries.

Demonstrated Comparability. We found working systems for population levels, such as the EU, that are equal to or greater than that of the United States, which make them roughly comparable in terms of size and complexity. However, significant differences remain in terms of political and economic structures, geographic location, demographics, and culture.

Credible Activity. There is a significant amount of activity across the United States in terms of both population coverage and geographic locations. Furthermore, there currently exists a broad-based coalition of leading individuals and institutions that is planning how to create and implement a key national indicator system for the United States—known as the Key National Indicators Initiative.

Even accounting for the unique geographic, political, economic, cultural, and situational factors in the United States, this evidence of demonstrated scalability, transferability, comparability, and credible activity, suggests that a U.S. system may not only be feasible, but is actually in the early stages of development.

More Information Is Needed on Costs, Effects, and Other Issues

Comprehensive key indicator systems appear to be a noteworthy development in governance and demonstrate potentially broad applicability. However, this should not be interpreted to mean that they are a fully mature and packaged solution ready for implementation anywhere, with known costs and benefits, risks, and possibilities that allow for systematic decisions on whether to invest in them or not.

Organizers of systems appeared to make decisions to develop and implement indicator systems based on various rationales. Some emphasized the importance of having better public information, available to a broad range of people, to support better decision making and public problem solving. Others started their projects to achieve better information on where the real problems exist to make better policy and fiscal choices.

At this stage of development, there are as many unanswered questions about these systems as there are areas of knowledge and information, but one question in particular is important: What is the return on the investment realized by jurisdictions that have invested in these systems? As previously mentioned in this report, we have not found enough evidence to make any sort of definitive determination on the return on investment. And, given the difficulty of valuing information and its impacts, such rational economic determinations will take years to emerge, as they have in the private sector. Hence, return on investment is an important area for further research and evaluation.

Still, such knowledge should not necessarily be seen as a precondition for starting new indicator efforts. In many cases, it is a common sense idea to want better, more easily usable and broadly available information for the public and other audiences on the position and progress of a particular community. Further, the lessons learned in this report may be enough to warrant initial expenditures that explore the possibilities of comprehensive key indicator systems in new areas around the United States and the world.

Congress and the Nation Have Options to Consider in Taking Further Action

If Congress or another entity chooses to support the development of a comprehensive key indicator system, certain features should be applied to the design and organization of it. Purpose and target audience are the most important design features to consider at the outset. Other features, including creating a broad-based governing structure, ensuring independence and accountability, acquiring diversified funding sources, and developing strategies to obtain needed indicators or data, will also need to be considered, decided upon, and factored into the design and organization of a system.

These design features can be achieved by starting with any of three different organizational options—public, private, and public-private. The comprehensive key systems that we reviewed could be classified into one of these three types of organizations. Therefore, we identified these three types of organizations as potential options for a national comprehensive key indicator system in the United States. Most of the efforts we studied tended to take on a public-private character over time regardless of the option with which they began because they had both public and private audiences and stakeholders among other reasons. Some of the systems we reviewed also presented indicators based upon both public and private information sources.

However, beyond these general features, there are a host of contextual factors that are critical in the implementation of any system, ranging from geography and demographic characteristics to cultural and situational considerations. A healthy implementation approach will take into account both general and customized factors and weigh them appropriately in any particular implementation.

Certain Design Features Should Guide the Development of Any System, Including a U.S. National System

Our work in the United States and around the world strongly suggests that the development of a national comprehensive key indicator system—or a comprehensive system at any geographic level for that matter—would greatly benefit from considering and applying several critical design features to its organization. The features below were drawn from our research, but there are other, complementary sources of design criteria for indicator systems which are worthy of note. Specifically, countries have followed the so-called “Bellagio Principles” in developing their overall

indicator systems.[1] In addition, communities in the United States appear to commonly use information and guidelines in *The Community Indicators Handbook*.[2]

At the outset, establishing a clear purpose and identifying a defined target audience and its needs are most crucial. Decisions about how to incorporate other important features into the system's design should follow decisions about purpose and target audience. Specifically, organizers of a comprehensive key indicator system will then need to consider and make decisions about how to

- ensure independence and accountability,
- create a broad-based governing structure and actively involve key stakeholders,
- secure stable and diversified funding sources,
- design effective development and implementation processes,
- identify and obtain needed indicators or data,
- attract and retain staff with appropriate skills,
- implement marketing and communications strategies for target audiences, and
- acquire and leverage information technologies.

[1] These principles were developed as guidelines for the whole process—choice and design of indicators, their interpretation, and communication of results—to measure and assess progress toward sustainable development. However, they apply more broadly to comprehensive key indicator systems irrespective of any organizing framework. They were developed in 1996 at an international meeting of measurement practitioners at the Rockefeller Foundation's Study and Conference Center in Bellagio, Italy. The 10 principles for an indicator system's design are as follows: (1) are guided by a clear vision and goals, (2) review the whole system as well as its parts and recognition of interaction among the parts, (3) consider equity and disparity within the current population and over generations, (4) have adequate scope, (5) have a practical focus, (6) involves openness, (7) have effective communication, (8) involve broad participation, (9) are an ongoing assessment, and (10) provide institutional capacity.

[2] Alan AtKisson, and Tyler Norris et al., *The Community Indicators Handbook* (Oakland, Calif.: Redefining Process, 1997).

The importance of each feature, and decisions regarding its application to a U.S. national system, will be greatly influenced and challenged by the scale, magnitude, and complexity of the jurisdiction within which such an effort takes place. For example, a national effort covering 290 million people would be affected by a more diverse and fragmented group of stakeholders, increased political conflict, and greater organizational and legal constraints than a city, region, or state. Also, it would likely necessitate a larger amount of fiscal and personnel resources than an effort at a smaller scale.

Establish a Clear Purpose and Define Target Audiences and Their Needs

Organizers should decide whether the system would be intended to focus on providing information allowing users to learn more about the conditions of their jurisdiction, or whether it would also have an outcome orientation and measure progress toward specific goals or a shared vision for the future. Additionally, the decision about audience focus forms the underlying construct for the entire system. This could be a choice to focus on the needs of a smaller audience, such as civic leaders, versus a broader audience that includes individuals and institutions in the private and public sectors. Most of the systems we reviewed purposely chose broader audiences but have had differing degrees of success in reaching and attracting these audiences.

Paramount to the design of any system is the establishment of a clear purpose and a defined target audience. Once decisions about purpose and target audience are set, decisions about the incorporation of other important design features, such as sources of funding and appropriate governance structures, will naturally follow. Related decisions include the activities that the managing organization will perform, and the products and services it will deliver. For example, a system that is aimed at monitoring and spurring progress toward a set of specific policy goals with targets attached to them would need to ensure that it had a governance structure, as well as development and implementation processes, that incorporates those officials who are positioned to take action to meet those targets, such as the heads of key agencies or legislative leaders. The specificity of a system's purpose is directly related to its ability to define success or failure, make corrections or document best practices, and to ultimately evaluate the value of the effort for both users and stakeholders.

In contrast, if the system is not structured based on outcomes but is designed primarily to help various groups learn more about the conditions of their jurisdiction, then a more inclusive, collaborative governance structure and processes that include user, provider, and supplier

communities—such as accountability, finance, business, and statistical groups—would be more appropriate. This would help ensure that the indicators included in the system reflected a broad-based consensus on the key economic, environmental, and social and cultural conditions to track and may increase the likelihood that the system will be widely used.

Organizers could elect to design the system for a specifically targeted audience, such as government policymakers, or a wider audience, to include not only government policymakers but business leaders, researchers, not-for-profit organizations, advocacy groups, the media, and citizens. This decision also forms the underlying construct for the entire system, including what implementation processes are needed, how it will be funded, and which indicators will be selected. For example, an indicator system aimed at a wide variety of communities, including government policymakers, business leaders, researchers, not-for-profit, and statistical agencies and organizations would need to be developed and implemented using highly collaborative processes to ensure that diverse viewpoints are incorporated. Further, if organizers decided to develop such a system, it would need to have a great deal of independence so that it could have broad appeal and relevance to those with differing ideologies, economic situations, religions, ethnicities, and races.

Ensure Independence and Accountability

A comprehensive key indicator system should be insulated from political pressures and other sources of potential bias to the greatest extent possible. If the indicator system is perceived as biased toward a particular ideological or partisan perspective, or perceived as less than transparent, the information it presents is less likely to have credibility and legitimacy among many users. To attract as diverse a group of stakeholders as possible, it is critical for the indicator system and its managers to be seen as credible, trusted conveners who have successfully coordinated a participatory process for developing and revising the system over time. Without the credibility that comes from a strong degree of independence, some users may lose trust in the accuracy and objectivity of the information.

Furthermore, experts and practitioners commented that the system should be designed so that debates among leaders are about what the indicator trends are showing, alternative interpretations and solutions, and how to address issues and opportunities. A well-designed system should have a minimal, ongoing level of discussion about whether organizational

processes themselves are delivering quality information with appropriate transparency.

One way to ensure independence and accountability would be to make the actions of the organization managing the system and key decisions accountable and transparent to the organizing entity, donors, other funders, and the public. Without this, the credibility and independence of the organization could be called into question. For example, a managing organization should be required to submit an annual report and audited annual financial statements to its major funders. Similarly, a U.S. national system could be required to submit a report to Congress if it received federal funding. These documents and the organization's use of funds should be subject to external review to avoid questions about credibility, integrity, and independence.

Ensuring independence and accountability would be even more critical at the U.S. national level, which operates in a highly partisan environment, and has a much greater diversity of stakeholders who are often fragmented along the lines of ideology, wealth, race, gender, ethnicity, and sexual orientation.

Create a Broad-Based Governing Structure and Actively Involve Stakeholders

A comprehensive key indicator system should be governed by a structure that includes a blend of public and private officials and represents views from various communities of practice, including the accountability, statistical, scientific and research, business, media, leadership, finance, public interest, and not-for-profit communities. They are the individuals who will make decisions about how to apply and implement the various design features and set the policies for the indicator system's staff to follow. They will also make decisions regarding the overall direction of the system, including the services and products that the managing organization will deliver. For example, comprehensive systems that represent large geographic areas, such as states, have found it useful to create broad-based governing boards appointed by governors, legislative leaders, and the boards themselves. These members can include representatives of business, educational organizations, labor organizations and other nonprofit organizations; executive branch officials; and state legislators. Members should ideally be chosen in a transparent, reliable way. A broad-based governing structure is important because it could help build interest and acceptance among diverse possible users of an indicator system and increase access to needed indicators or data.

Our fieldwork shows that such diverse involvement from leaders of different communities can help to build consensus around a set of selected indicators and increase use of the system by different groups. In fact, the single best way to ensure active involvement from an array of diverse stakeholders is to incorporate leaders from key communities as part of the management of the system. Moreover, this governing structure could benefit from having subcommittees that are dedicated to tackling specific aspects of developing and managing a system, such as securing funding or designing strategies to communicate the results of the indicators and value of the system to others.

In addition, recognizing that most systems will be revised over time, organizers will continue to benefit from soliciting views from a broad range of citizens, elected officials, government staff, business leaders, advocacy groups, academic institutions, and not-for-profit organizations in developing the system and identifying or revising the indicators. Increased stakeholder involvement generally strengthens the support for and use of a comprehensive indicator system and enhances its overall credibility and quality. Having diverse representation in its governance structure will be even more crucial in a national effort because of the range of different interests and viewpoints that exist across the country.

Secure Stable and Diversified Funding Sources

Securing adequate funding that remains stable over time to run the system at the outset, when costs are higher, as well as later when costs sometimes level off, is crucial to a system's long-term sustainability. Accordingly, an indicator system could draw upon funding from a vast number of possible sources, including federal, state, and local agencies; private corporations; not-for-profit foundations; and academic institutions. Such opportunities would be even greater at the national level. As described earlier, securing and sustaining funding has been a major challenge for some comprehensive key indicator systems, particularly those that depend on a single source of funds, as these systems can be vulnerable to fluctuations in a particular source.

One way to ensure stability is to diversify the number and types of funding sources. Doing so can potentially reduce an indicator system's vulnerability to funding uncertainties or cuts. Seeking funding from both public and private sources also allows more varied stakeholders, or funders, to be brought into the system and encourages the diverse communities they represent to use the system. Moreover, diversity even within one type of funding is also helpful. For example, public funding

could be drawn from sources such as direct appropriations, government agency contracts and grants, or all of the above. The extent to which organizers can diversify funding varies and depends in part on applicable legal constraints.

Design Effective Development and Implementation Processes

Having well-defined and effective processes and systems in place to carry out the basic functions of the organization and the system's design is important for comprehensive key indicator systems to operate effectively. Specifically, it is important to have transparent, collaborative, and repeatable processes in place to develop and modify an organizing framework for the indicators, select and revise the indicators, acquire indicators or data to compute indicators, engage data producers, assess the quality and reliability of the indicators or data, seek and maintain funding, and develop and implement communications and marketing strategies, among other things. Issues regarding the quality of indicators and their supporting data are especially important because of the high profile given to information in a comprehensive key indicator system.

For example, a comprehensive indicator system should have a defined, agreed-upon process for selecting and revising the indicators to be included in the system. This process should be guided by criteria for selecting indicators—criteria that have been agreed to by the system's governing leaders and are acceptable to the communities they represent, as well as other potential users. Such criteria guide the selection process, help to reduce tensions among stakeholders, and help achieve consensus among them. Many of the indicator systems we analyzed in the United States and around the world have established such transparent criteria. Some of the common criteria that have been used by these systems, and could be replicated by a national system for selecting its indicator set, include

- relevance to target audiences,
- aligned with the goals or key issues that the system wants to monitor,
- easily understood and meaningful to a variety of audiences,
- drawn from reliable sources,
- easily available from existing sources,

- not resource intensive to obtain,
- updated regularly, and
- comparable across geographic areas or various population groups.

While transparent processes, such as criteria for selecting indicators, are important, a system's leaders should also have sufficient flexibility to modify the system's processes as situations change and some become irrelevant or counter-productive, or as more effective ones are discovered.

Identify and Obtain Needed Indicators or Data

Most comprehensive indicator systems report indicators or use data that are originally collected by other organizations. Identifying and having the ability to gain access to indicators or data that are provided by other organizations, including government agencies and the private sector, is critical to these systems' survival. A national system would also benefit from being able to combine both public and private sources of information, assuming the existence of agreed-upon quality assurance criteria, standards, and processes. In addition to having legal authority to access the information, the system should have responsibility, including legal responsibility, for protecting the confidentiality of the information.

Further, some organizations are reluctant to share information if they believe that data might be misrepresented or used to make a particular program or agency look bad. To overcome these and other constraints, comprehensive indicator systems should establish collaborative relationships with data producers to convince them to share information in a timely manner, particularly information that is not readily available to the public. One effective way to ensure that the system obtains needed information is to incorporate data producers or key representatives of the data and scientific communities into the system's leadership. At the very least it is helpful to have these representatives at the table when decisions are being made about which indicators to select as part of the system.

A system's leadership should also develop clear procedures for fair treatment of data providers. To do this, some systems have established more formal processes, such as memorandums of agreement that specify how the data will be used and when and in what form the producers will provide these data. In addition, if a national system is developed, it will be necessary to establish access and privacy rights by statute.

Attract and Retain Staff with Appropriate Skills

A number of human capital issues need to be addressed for an organization that houses a comprehensive key indicator system. The most basic would be to establish the nature of the position of chief executive officer, who would lead the system's staff, and select a highly qualified person for this position. Because of the high visibility of the position and the complexity of the organization's work, particularly at the national level, a person with significant stature and expertise would be needed.

Having staff with appropriate skills is also critical to ensuring the system will be operated effectively on a day-to-day basis and working with the system's leadership to carry out their decisions. A system's staff would need to include individuals with a wide variety of skills and knowledge in areas including statistics, information technology management, economics, accounting, and marketing and communications, as well as working knowledge of key economic, environmental, and social and cultural issues. In addition, these individuals must bring highly collaborative skills to the table, including experience in facilitating group processes and consensus-based decision making. Such skills are important for staff since they would be responsible for managing processes to continually engage key stakeholders and ensure the effective running of the system, including cooperation from data providers.

In addition, other concerns to consider include the exact types and number of employees, the salaries they would be paid, the benefits they would receive, and the protections that would apply to them. An additional human capital issue concerns temporary staff. It is useful if the system's staff could rely on occasional outside assistance to supplement the permanent staff, for example, through fellowships, interagency personnel agreements, internships, and exchanges with other organizations and government agencies. This element would help to break down potential barriers, promote a better understanding of the needs of various statistical entities, and help build public-private partnerships.

Implement Marketing and Communications Strategies for Target Audiences

A comprehensive key indicator system would need to have multifaceted marketing and communications strategies that are tailored to diverse target audiences. Marketing and communications strategies are intended to spread the word about the existence and features of the system; disseminate information on what the indicator trends are showing regarding economic, environmental, and social and cultural conditions and trends; and encourage a broader base of individuals and organizations to

make use of the system. Effective marketing and communication strategies are critical to ensuring widespread understanding and use of the system, as well as ongoing political and funding support for it.

In particular, the media, whether print or electronic, are a critical audience for a system because they play a vital role as both users of indicators and providers of information to diverse audiences throughout all segments and levels of society. They can help spread the word about what the broad indicator set communicates, what specific indicators or sets of indicators measure and what they mean, how they can be used by various audiences, and what major trends may be worth paying attention to on a regular basis.

Based on the experience of others, some specific aspects of an all-encompassing strategy might include

- conducting briefings and demonstrations for key legislators, agency officials, and their staffs;
- maintaining an interactive Web site;
- making presentations at the conferences of various communities, such as the accountability, statistical, scientific and research, business, media, leadership, finance, and public interest and not-for-profit communities;
- reaching out to the media so that they report on the system;
- publishing a variety of comprehensive and topical or domain-specific reports on indicator trends;
- holding open workshops for leaders and their staffs, as well as for citizens;
- providing training sessions and other learning opportunities;
- making technical assistance available to users by phone or e-mail; and
- conducting media events for the release of new reports or major updates, featuring notable leaders as spokespersons.

Acquire and Leverage Information Technologies

In the past decade, technology has made it much easier and less resource intensive to collect, coordinate, and exchange data among various organizations, and disseminate information to a broader audience. For example, the Internet has revolutionized the way indicators and base data are made available to the public; some federal agencies post thousands of pieces of data free of charge on their Web sites. Innovative technology could also facilitate widespread use of a comprehensive key indicator system. For example, a highly interactive Web site would make the indicators widely available and accessible to public and private leaders as well as citizens. It would also enhance a system's relevance by allowing users to review certain indicators selectively, or illustrate indicator trends in different ways, such as cutting them by geographic regions, race, or gender. In acquiring and applying technology, a national system in particular could look to a number of existing systems in the United States and around the world that are on the cutting edge.

While a national system (or any system for that matter) would benefit from employing the latest technology, doing so requires extensive fiscal resources, particularly at the outset. Specifically, a system would need adequate resources to purchase the technology and upgrade it over time, as it changes rapidly. A system would also need to have adequate resources and flexibility to attract and retain technical staff with relevant expertise to manage the information technology systems.

Congress Could Choose from a Range of Organizational Options as Starting Points for a U.S. National System

If Congress decides to establish a national comprehensive key indicator system and identify an organization to house it, a number of organizational options are available to choose from, including public, private, and combination public-private entities. There are advantages and disadvantages associated with each option. These basic options, to a significant degree, also hold for any neighborhood, community, city, region, or state that is considering a comprehensive key indicator system.

It is important to note that the specific organizational option Congress or any other decision maker chooses as a starting point may be less important than ensuring that key design features are incorporated into it. This would include considering ways in which multiple solutions might coordinate with one another until the time is right to create an overarching institutional structure. Eventually, since most of these systems tend to involve public-private interactions, the public-private option appears to offer the highest degree of flexibility to apply the common design features.

Any Viable Comprehensive Key National Indicator System for the United States Will Eventually Involve Substantial Public and Private Interaction

In terms of organizational implementation, most of the efforts we reviewed had some public-private character—either formal or informal—that provided certain flexibility in terms of many of the key design features we identified.

- First, assessing the position and progress of a jurisdiction in a market-oriented democracy like ours would benefit from aggregation of both publicly and privately produced data, as there is a great deal of information that is produced by private sector providers.

- Second, both public and private institutions, as well as individuals and a wide variety of groups, make up any jurisdiction that is being measured and, thus, have an interest in being engaged.

- Third, much federal government data are tied directly to functional or programmatic purposes and restricted to areas in which the government has a vested interest. This represents a built-in constraint to funding and/or including indicators that are not directly associated with any federal function or program.

- Fourth, public sector institutions that provide data and indicators today in most cases collect them from private individuals or institutions, who may have an interest in seeing more available and accessible information in return for the burden of their time, expense, and energy.

As a result, there is little question that any comprehensive key indicator system would have a public-private character. The issue for any jurisdiction considering a system is where to start, which is a complex decision that needs to be made on a case-by-case basis.

Publicly Led, Privately Led, or Public-Private Organizations Are Options Congress Could Consider as a Starting Point

We identified three primary organizational options that Congress could consider if it decides to initiate a national comprehensive key indicator system. Each option would allow for incorporation of all or most of the key design features, but to varying degrees. These three organizational options are (A) a public entity, (B) a private entity, and (C) a combination public-private entity. Our work revealed that lasting comprehensive key indicator systems—showing positive effects—existed in a number of organizational formats, ranging from strictly public systems, such as Oregon Benchmarks, to systems housed in private, nonprofit organizations, such as Chicago 2020. There are advantages and disadvantages to each

option, as well as a great deal of variety in their basic characteristics. Any key indicator system that uses information not already in the public domain needs to have the authority to access it as well as the responsibility for protecting privacy and other concerns.

We present three options below that lay out some significant advantages and disadvantages. We also identified existing national organizations to highlight various characteristics of each organizational option.

Option A: A Public Organization

Congress could choose a federal agency, or component of a larger agency or department, to lead the development and implementation of a national comprehensive key indicator system. Table 6 provides additional detail on the characteristics, advantages, and disadvantages of the public option.

Table 6: Characteristics, Advantages, and Disadvantages of the Public Organizational Option

A publicly led system would be housed in a federal agency, operating as either (1) a new organization within an existing agency, (2) a completely new agency, or a (3) an added responsibility in the mission and activities of an existing agency. Federal statistical agencies could be required to provide a new system with access to data. Existing organizational relationships and processes could be leveraged, such as ensuring the full participation of federal statistical agencies and working with successful forums and other models for engaging public and private external stakeholders, such as advisory committees maintained by some of the principal statistical agencies.	
Advantages	**Disadvantages**
• A public organization could build upon the significant institutional capabilities and cultures of professionalism and independence within the federal statistical system. • The federal government is already the center of gravity for national statistics and a public organization could build on this base. • A public organization could help ameliorate concerns regarding access to and use of federal statistical information. • Successful forums and other models currently exist in the federal system to incorporate stakeholders from inside and outside government, and could be replicated. • A public organization could use lessons learned from federal government experiences in implementing federal laws concerning transparency and accountability.	• Few federal agencies have broad enough scope to house a comprehensive national system (the U.S. Census Bureau may be an exception). • Difficulties exist in mixing official and unofficial statistical information. • It is an ongoing challenge for information providers to maintain independence within the national political context. • A public organization could limit private sector contributions of funding or staffing by volunteers. • A public organization could make it easier for funding displacement to occur, as the organization could have constraints on seeking outside funding. • A public organization could be constrained by the federal management and human capital structures that may apply to it, potentially affecting the availability of needed talent.

Source: GAO.

To illustrate some of the main features of a publicly led option at the national level, we selected the U.S. Census Bureau. The Census Bureau is one of the main federal statistical agencies, as it collects a wide variety of information across the economic, environmental, and social and cultural domains. It is a major participant in the federal statistical system, with an extensive statistical infrastructure and skill base. As such, it is a viable option for taking a lead role in developing a national system.

U.S. Census Bureau as an Example of a Public Organization

The U.S. Census Bureau is a federal agency that has broad statutory authority to collect and report on statistical information in the economic, environmental, and social and cultural domains. A primary responsibility

of the Census Bureau is to conduct the decennial census of Americans. This census has been conducted every 10 years since 1790. In addition to the decennial census, it conducts more than 100 other surveys every year. Federal law contains provisions to keep confidential the information obtained by the Census Bureau.

The Census Bureau is under the jurisdiction of the Department of Commerce. It is headed by a director, who is appointed by the President, with the advice and consent of the Senate. There is no specified term for the director under the statute. It has over 10,000 employees and is funded through federal appropriations. It can be paid for special analytical products produced at the request of private or public parties. The agency's workforce expands dramatically when the decennial census is taken every 10 years—approximately 860,000 temporary workers were hired for the 2000 census. The Census Bureau is not authorized to receive outside donations, or otherwise obtain nonappropriated funds. However, it is specifically authorized to obtain information from any other department, agency, or establishment of the federal government or of the Government of the District of Columbia. The agency has 12 regional offices located throughout the country. Under Title 13, the Census Bureau has authority to access individual data from other agencies and could use these data to create new indicator series. One such example under development is the Longitudinal Economic Household Dynamics program, which uses data from BLS, the Social Security Administration, and the Internal Revenue Service to produce "workforce indicators."

The Census Bureau is working to make comprehensive information more available to diverse audiences. For example, the American FactFinder is an electronic system for access and dissemination of Census Bureau data on the Internet. The American FactFinder offers prepackaged data products and user-selected data tables and maps from the 2000 U.S. census, the 1990 Census of Population and Housing, the 1997 Economic Census, and the American Community Survey.

Option B: A Private Organization

Another option would be for Congress to identify or charter a private organization to develop and implement a national comprehensive key indicator system. This organization could either be for-profit or nonprofit. Because too strong a profit motive could significantly affect a system's perceived or actual real independence, credibility, and legitimacy, a nonprofit organization is probably be better suited to develop a widely

accessible system integrating diverse information on the position and progress of the United States in the economic, environmental, and social and cultural domains. Table 7 discusses the option of a private organization in greater detail.

Table 7: Characteristics, Advantages, and Disadvantages of the Private Organizational Option

A private, not-for-profit organization chartered by Congress would provide semiofficial status to a national system, yet set it apart from the administration or Congress. A common type of congressionally chartered organization that would be an appropriate and likely venue for a national system is a Title 36 corporation, which is listed in Title 36 of the U.S. Code. Noteworthy examples of Title 36 corporations include the National Academy of Sciences and the National Academy of Public Administration. Chartered corporations listed in Title 36 are not agencies of the United States. For example, the corporation's debt is not guaranteed, explicitly or implicitly, by the full faith and credit of the United States.

Title 36 status for national organizations tends to provide an "official" imprimatur to their activities, and may provide them some degree of prestige and indirect financial benefits. Federal supervision of congressionally chartered not-for-profit organizations is limited. Among the few federal requirements for Title 36 corporations are that they must have independent audits done annually and have the audit reports submitted to Congress. The House Committee on the Judiciary forwards all audits received to GAO for review. Title 36 organizations can receive appropriated funds in the form of federal contracts, grants-in-aid, and other forms of financial agreement with executive departments and agencies. These organizations may also receive private gifts and bequests, although they are not intended to operate for a profit.

Advantages	Disadvantages
• A private organization would be more adaptable and exposed directly to competitive market forces. • A private organization would have a high degree of flexibility in developing management and human capital policies. • A private organization would offer the potential to develop affiliations with a wide variety of groups. • A private organization could have the ability to take actions subject to fewer constraints than organizations that are subject to governmental processes and politics. • A private organization could solicit funds from a wider range of potential donors and retain voluntary staff. • A private organization could be more independent of the political process than a purely public organization.	• A private organization would be separate from the management control system of the federal government, which could compromise accountability and integrity. • A private organization would be disconnected from the political appropriations and authorization processes, possibly making it more difficult to encourage policy makers to support it. • A private organization could have a smaller skill base and infrastructure to start. • Housing it in a private organization could lead to competition in the marketplace, detracting from its status as a public good. • Private organizations, unless they have highly diversified stakeholders or strong institutional cultures and processes, can be as subject to bias or politicization as government organizations.

Source: GAO.

To illustrate how a private organization chartered by Congress might operate, we selected the National Academies of Sciences (NAS). NAS is noted for its reputation of providing independent, scientifically grounded analysis, advice, and recommendations to the nation, could viably take a lead role in developing and implementing a national system.[3]

National Academy of Sciences as an Example a Private Organization

NAS is part of the National Academies, which is a society of distinguished scholars who are engaged in scientific and engineering research. Specifically, it serves to investigate, examine, experiment, and report on any subject of science or art where called upon to do so by any department of the government. Collectively, four research organizations are known as the National Academies, which is an umbrella structure for these organizations. NAS was the first of the four to be created, in 1863, and was later joined by the National Research Council in 1916, the National Academy of Engineering (NAE) in 1964, and the Institute of Medicine (IOM) in 1970. NAS is a congressionally chartered, not-for-profit corporation under Title 36 of the U.S. Code. NAS includes about 1,800 members, the NAE about 1,900, and the IOM about 1,200 members. NAS, NAE, and IOM consist of members elected by peers in recognition of distinguished achievement in their respective fields.

Congress chartered NAS in March 1863. It is defined officially as a private, not-for-profit, "self-perpetuating society of distinguished scholars engaged in scientific and engineering research, upon the authority of the charter granted to it by Congress." NAS is exempt from federal taxation and does not receive direct federal appropriations for its work. Studies undertaken for the government by NAS usually are funded out of appropriations made available to federal agencies by Congress.

Option C: A Public-Private Organization

A third option for Congress is to employ a public-private organization, which would combine attributes of both a federal government agency, like the Census Bureau, and a private, not-for-profit organization, like NAS. Table 8 describes the public-private option in greater detail.

[3] The National Academy of Sciences presently houses the Key National Indicators Initiative—the ongoing U.S. effort to begin laying the groundwork for a national comprehensive key indicator system.

Table 8: Characteristics, Advantages, and Disadvantages of the Public-Private Organizational Option

The public-private option can vary tremendously in organizational design, funding arrangements, and the existing laws that apply. In fact, existing organizations, often referred to as "quasi-official agencies," have little in common with each other, as they were all created at different times for different reasons. As a result, it is difficult to find common elements among them. Congress would have a great deal of flexibility in chartering a public-private organization and delegating various responsibilities to it for the purpose of developing a national comprehensive key indicator system. However, such "quasi-official agencies" are often subject to political and funding pressures not dissimilar to those encountered by regular executive and legislative branch agencies. In designing a public-private organization, Congress would need to decide which existing laws would apply to the organization, such as the Government Performance and Results Act, the Privacy Act, or the Inspector General Act. Unlike the strictly public or private options, for which organizational constructs are well established, Congress would need to design a new, unique public-private organization by selecting from a menu of available features.

Advantages	Disadvantages
• A public-private organization could build on the existing capability of the federal government but retain a degree of flexibility to adapt to changing circumstances. • Establishing a broader base that builds upon both public and private interests could enhance the ability to form an effective constituency in Congress. • The mix of public and private interests could help balance independence with crucial connections to the political process. • A public-private organization could solicit donations and retain volunteer staff.	• Because it requires a new organization, it faces difficulties inherent in starting up. • There are risks of competing or overlapping with existing federal functions in an unconstructive fashion if it is not carefully structured. • Public-private organizations are not immune to political pressures and would have to build institutional processes and a culture focused on quality and independence.

Source: GAO.

In designing a public-private organization, Congress could look at a list of diverse national organizations for ideas. One key example is the Smithsonian Institution (Smithsonian), which is a unique hybrid organization in that it is both publicly supported and privately endowed, and has a mixture of federal and private employees. We selected the Smithsonian to illustrate the tremendous amount of flexibility Congress would have in establishing a public-private partnership and some key characteristics of one—although it is not a viable option for taking a lead role in a U.S. national system.

Smithsonian Institution as an Example of a Public-Private Organization

The Smithsonian is identified in the *U.S. Government Manual* as a "quasi-official agency" and its purposes are to conduct scientific and scholarly research, share resources with communities throughout the nation, and engage in educational programming and national and international cooperative research.[4] It is the world's largest museum complex, comprising 14 museums and a national zoological park in Washington, D.C., and two museums in New York City.

Started in 1846, the Smithsonian is a unique creation of Congress that is both publicly supported and privately endowed. Specifically, the Smithsonian is financed in part by trust funds and by federal government appropriated funds.[5] In fiscal year 2003, for example, the Smithsonian's budget was $786 million, consisting of $559 million in federal appropriations and an estimated $227 million in private trust funds. Congress does not provide direction or have control over the trust funds. Federal funds are used for purposes authorized by Congress, while trust funds are generally used more freely for collection, acquisition, and the salaries of trust fund employees. The Smithsonian is unusual in that it has two types of employees: federal employees who are part of the civil service system and nonfederal employees (or "trust fund employees"), whose salaries and benefits are paid from the trust fund. In 1995, the Smithsonian had 6,537 employees— 4,492 federal and 2,045 trust fund employees, along with thousands of volunteers.

The Smithsonian Institution is administered by a Board of Regents and a Secretary. The Board of Regents includes the Vice President of the United States, the Chief Justice of the United States, three Senators, three Members of Congress, and nine other persons (two Washington, D.C. residents and seven residents of other states, but no two from the same state). The President Pro Tempore of the Senate appoints the senators, the Speaker of the House appoints the members of the House, and the nine other persons are appointed by a joint resolution of the Congress. Their terms of office range from 2 to 6 years. The Board appoints the Secretary

[4] The *U.S. Government Manual* lists four entities as "quasi-official agencies": the Legal Services Corporation, the State Justice Institute, the United States Institute of Peace, and the Smithsonian Institution.

[5] The Smithsonian was created by an August 10, 1846, act to carry out the terms of the will of British scientist James Smithson, who had bequeathed his entire estate to the United States "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge." His bequest was $541,379.63.

of the Smithsonian, who serves as the organization's chief executive officer. To date, the Secretary has always been a trust fund employee. Each member of the board is reimbursed for his or her necessary traveling and other actual expenses, but is not paid a salary.

Varying federal laws and attributes apply to the Smithsonian. For example, it has a majority federal employee workforce, receives representation from the United States Attorney's Office, enjoys absolute governmental immunity in libel suits, receives a large amount of federal funding, enjoys federal status in taxes and property transfers, publishes its rules and regulations in the *Federal Register* and *Code of Federal Regulations*, is required to have an inspector general, and is subject to GAO audits.

Choosing a New or Existing Organization Carries Certain Advantages and Disadvantages

A further consideration in designing an organization to house a comprehensive key indicator system is whether a new or existing entity is most appropriate; and there are advantages and disadvantages to each. Unlike existing organizations, the most significant disadvantage for a new organization is the difficulty of incubating it. The challenges of funding, establishing networks internally and with key external communities, and new operating policies and procedures, are all challenging in a start-up situation. In addition, it is more difficult to build brand awareness, trust, and credibility. However, there is the opportunity to begin entirely new, and to design an organization that suits exactly the key design features that might lead to developing a long-lasting, well-used indicator system.

On the other hand, at the national level, there may be few, if any, existing organizations with the necessary size, scope, skill base, and infrastructure to effectively support an effort of such complexity, scale, and scope. Two of the organizations we selected for illustrative purposes—the Census Bureau and the National Academy of Sciences—appear to satisfy some of the characteristics necessary to support a national indicator effort, although they may not be sufficient in all regards. A few other organizations may lend themselves equally well to a U.S. national indicator system, although not all features of these organizations may be directly applicable. The advantages and disadvantages of a new or existing organization are illustrated in table 9.

Table 9: Advantages and Disadvantages of a New Versus an Existing Organization

	Advantages	Disadvantages
New organization	• A new organization could be designed in alignment with a system's purpose and target audiences. • A new organization would be able to incorporate all design features with few restrictions.	• A new organization could be difficult to establish and incubate. • It could be difficult to obtain seed capital with no known reputation. • Establishing new networks of stakeholders and users is difficult. • Establishing new operating policies and procedures is challenging. • Hiring and training a new workforce can be difficult. • Building trust and credibility from scratch is challenging.
Existing organization	• An existing organization would likely have well-established networks of stakeholders and users. • An existing organization would likely have an established reputation, prestige, trust, and credibility. • Funding sources and channels would have already been established. • Operating policies and procedures would already be in place. • An existing organization could leverage existing facilities and information technology.	• Few existing organizations would have the necessary scope, skill base, and infrastructure to support such an effort. • The system would have to compete with an existing organization's other projects and programs. • The system would have to deal with policies and procedures already in place. • Organizers would have less flexibility to design a system that is aligned with its purpose and target audiences. • Organizers would have less flexibility to incorporate all design features.

Source: GAO.

A New Public-Private Organization Could Offer Greater Flexibility to Apply Design Features

The public-private organizational option could provide Congress and organizers with a great deal of flexibility to apply effectively and more easily all of the key design features that we identified as critical to a lasting, well-used indicator system: ensuring independence and accountability, creating a broad-based governing structure and actively involving key stakeholders, securing diversified funding, designing effective development and implementation strategies, identifying and obtaining needed indicators or data, attracting and retaining staff with appropriate skills, implementing marketing and communications strategies for target audiences, and acquiring and managing information technology. It could also allow

Congress to combine the best features of both public and private organizations while minimizing their disadvantages. Further, most of the experts we interviewed believed that such an organization would be the best venue for a national system. However, we found no significant why reason the other options should be ruled out, especially as potential starting points that might eventually help lay the foundation for the creation of a public-private partnership.

A public-private organization appears to offer the best possibility of customizing a design to interact formally with significant public and private actors in the accountability, statistical, scientific and research, business, media, leadership, finance, public interest, and not-for-profit communities. It could combine the best features of federal support and engagement, while minimizing restrictions of federal management policies by selectively subjecting the organization to only certain laws and controls, and allowing it to solicit a wider variety of public and private funds while having the ability to retain voluntary staff.

A public-private partnership could also build on existing capabilities and retain flexibility to incorporate competitive human capital and other policies, including fewer restrictions on compensation, marketing, communications strategies, and acquiring and utilizing innovative technology. Further, it offers a better balance of independence and connection to the political process. Finally, a public-private organization affords the best opportunity to construct a governing structure with a balanced representation from the major communities and topical areas of knowledge, thus helping to ensure the organization's credibility and its ability to involve various public and private entities in its oversight and evolution.

Others Considering Comprehensive Key Indicator Systems Have Similar Options

Unique aspects of national, state, and local laws will affect the specific organizational forms that a comprehensive key indicator system might take in any one jurisdiction. However, the three basic alternative starting points and options analysis discussed for a U.S. national system also apply elsewhere. As shown in table 10, all the systems we studied had an organizational form that for the most part fits the categories discussed. Again, any organizational type tends to take on a public-private character in terms of the stakeholders with which they informally or formally interact, the types of indicators they use, and the funds they receive, among other things.

Table 10: Organizational Types of the Systems Studied for Our Review

Publicly led	Privately led	Led by public-private partnership
European Structural Indicators	Benchmarking Municipal Neighborhood Services in Worcester (Massachusetts)	Baltimore's Vital Signs
Hennepin County Community Indicators (Minneapolis)	Chicago Metropolis 2020	Boston Indicators Project
King County Benchmarks (Washington)	Compass Index of Sustainability (Orange County, Fla.)	Burlington Legacy Project (Vermont)
Minnesota Milestones	Index of Silicon Valley (California)	Community Atlas (Tampa area, Fla.)
New York City Social Indicators	Milwaukee Neighborhood Data Center	German System of Social Indicators
North Carolina 20/20	Neighborhood Facts (Denver)	Indicators for Progress (Jacksonville, Fla.)
Oregon Benchmarks	Sustainable Seattle	Maine's Measures of Growth
Portland Multnomah Benchmarks (Oregon)		Santa Cruz County Assessment Project (California)
Results Iowa		Social Assets and Vulnerabilities Indicators (Indianapolis)
Santa Monica Sustainable City Program (California)		State of the Region (Southern California)
Social Well-being of Vermonters		
United Kingdom Sustainable Development Indicators		

Source: GAO.

An important advantage for officials at the local level is that they have many different comparable entities around the country to learn from in deciding how to construct systems of their own, as well as organized communities of practice that can help translate general lessons into specific guidance for a particular jurisdiction.

Observations and Next Steps

Observations

We have identified several areas where we believe that observations are merited and where we can note certain potential implications. These observations are supported by our work and the work of others as reinforced in discussions with many experts and practitioners in the field. Nevertheless, it is important to take into account that even the smallest indicator system represents a complex interaction between people, institutions, sectors, culture, and other contextual factors, making their evaluation difficult.

A Comprehensive Key Indicator System for the United States Merits Serious Discussion

The nation as a whole confronts profound challenges and opportunities resulting from a variety of factors, including changing security threats, dramatic shifts in demographic patterns, the multidimensional processes of globalization, and the accelerating pace of technological change. However, public debate over the nation's agenda is often based on information that is limited, fragmented, and incomplete. Difficult decisions to confront these challenges and opportunities require reliable, useful, and shared sources of information that are readily accessible to citizens, advocates, policymakers, and the media.

The United States already has a large supply of data and indicators in topical areas. So, the natural question asked by many who are initially exposed to the idea of a national comprehensive key indicator system is: If we have so much information, on so many issues, from a variety of different points of view, why do we need a national comprehensive key indicator system? The common sense answer to this question is that having information on all the parts is not a substitute for looking at the whole, whether in life, business, science, or self-governance and politics. What Abraham Lincoln once said is truer than ever today: "If we could first know where we are, and whither we are tending, we could better judge what to do, and how to do it."

The fact that it is possible to get a great deal of information on U.S. society if one is skilled enough to seek it out, collect it, and analyze is helpful if one's purpose is to solve a specific problem or answer a specific question. However, that same large amount of information in many different places and many different forms is a hindrance if one's purpose is to take stock of all the problems and opportunities a jurisdiction faces.

Looking regularly at the most important aspects of the whole is critical to assessing how we are doing and whether we are moving toward important

aims and aspirations. The same logic that explains why we go for annual check-ups where physicians evaluate common key indicators of individual health (e.g., blood pressure or cholesterol), also explains the essential rationale used by the systems we studied. These indicators help identify the most important problems, help set priorities to address them, highlight areas where more information is needed, communicate a perspective about overall well-being, and inform us about potential choices. As our work has shown, this logic is now being extended from neighborhoods to communities, to states, nations, and to the global level. Without a key indicator system for the nation, it is difficult to see the relationships among issues, frame problems in an overall context, or assess the country's position and progress as a whole.

A comprehensive key indicator system could be used in a variety of ways to better inform constituencies. For example, businesses could use the system to access data to help inform market strategies, or individuals could better understand areas of national life that could improve their educational or career choices. These constituencies and others, such as policy makers, the media, and specific communities of interest (e.g., the disabled), could use a national comprehensive key indicator system to

- highlight areas in which progress has been made in improving people's living conditions;
- connect debates about the relative merits of competing demands to reliable data about actual conditions to help determine priorities and make difficult choices among competing agendas;
- provide information about changes over time, which would contribute to assessments about the impact of particular interventions and policies, thereby providing greater accountability and learning;
- facilitate comparisons within or among the states or the nation as a whole with other countries, which are central to understanding the U.S. role in the global community and informing decisions about how to best address emerging issues;
- accelerate the identification of important gaps in the nation's knowledge of itself and the quality of that knowledge through regular collaboration and dialogue with other comprehensive key and topical indicator systems;

- expand the level of knowledge throughout the country as users of comprehensive key indicator systems pursue more detailed information from topical indicator systems;

- improve the degree of fact-based consensus on common aspirations, which could help shift scarce time, energy, and resources from debating facts and aims to discussing priorities and building bodies of evidence for the most effective solutions;

- allow various individuals and institutions within a particular jurisdiction to see themselves in the context of a larger social unit (e.g., how state issues interrelate with national issues), to compare themselves to other jurisdictions (e.g., states comparing themselves with others), and in relation to other communities and neighborhoods;

- if implemented electronically via the World Wide Web, provide many more people and institutions around the country an accessible and usable "window" into the nation's critical sources of data, thus increasing the return on the large investments already made and leveraging ongoing investments to collect more data more frequently;

- at the federal level, inform a much needed re-examination of program effectiveness and the mandated creation of a governmentwide performance plan.

To take one example, a debate is now emerging on how the nation will respond to the nation's long-term fiscal challenges. As we and other experts have pointed out, there is a growing gap between the projected the cost of providing currently promised benefits under the Social Security, Medicare and certain other federal programs and the projected financial resources that will be available to deliver them. This gap is affected by predictable changes in the demographics of the U.S. population. Resolving such issues will involve many different parties defining, analyzing, modeling, and interpreting statistical indicators on demographics incomes, jobs, savings, health care, taxation, and a variety of other issues. Providing a common base of facts from many different topical areas on a strategic issue for the country such as this one illustrates the value that a national comprehensive key indicator system could provide.

A National Effort May Face Significant Challenges

If Congress considers supporting the development of a comprehensive key indicator system for the nation as a whole, it must carefully decide upon the best direction to take such a large-scale, challenging effort. If designed and executed well, such a national system could have wide impact when American citizens, leaders, and institutions pay attention it, access it, and use key indicators to inform their personal and professional choices. Building in the design features discussed in this report, as well as the flexibility to learn from and adopt innovative approaches, would be important. However, it is difficult to ascertain how certain design features and organizational options would play out in the context of a system for the entire nation.

Alternatively, if an effort is poorly planned and implemented, it could absorb scarce time and resources, fail to meet expectations and make it more difficult to create such a system in the future. Although any U.S. system will be imperfect from the start and continuously evolving, a certain threshold of quality will be important in achieving the relevance, legitimacy, and utility needed to build momentum and continuously improve over time.

The challenges of developing and implementing a comprehensive key indicator system would be great at the national level in the United States due to a range of significant factors. Because of the scale and complexity of a national effort, organizers of a national system should take into account—and develop contingency plans to address—the following major challenges in addition to those already noted for smaller-scale efforts.

- Securing and maintaining adequate and stable funding could be difficult in the current environment of existing and emerging fiscal challenges and the need to address multiple national priorities.

- Deciding on the purpose and audience will require significant debate. From one point of view, some common ground on the most important aims for the nation would have to be found initially, while a broader-based consensus would evolve over many years. From another point of view, the system could be designed around the idea of multiple audiences and simply identify a broad range of important aims.

- Building an audience would require overcoming inertia and some entrenched interests. Because national leaders have traditionally considered information and made policies in discrete topical areas, a national comprehensive key indicator system would not necessarily

have a built-in audience. This increases the difficulty of encouraging leaders to think about national issues in a comprehensive framework and use a comprehensive key indicator system for doing so.

- Agreeing on the types and number of indicators would likely require a long, contentious process to adequately involve and consider the diverse views of a wide range of public and private stakeholders. Highlighting certain data in a key indicator system could possibly have the negative consequences of upsetting certain constituencies and possibly eroding support for collecting data.

- Obtaining consistent and comparable indicators from a vast array of sources would be challenging at all levels due to the different ways in which information is collected, organized, updated, and disseminated, along with varying degrees of quality and reliability. The long-term utility of a national system would be significantly enhanced by—and perhaps even depend on—the ability to

    - disaggregate indicators from a larger scale (e.g., the average unemployment rate for the nation) to smaller scales of society where action can be taken (e.g., the unemployment rate in one's city or community) and

    - aggregate and or/compare indicators from smaller scales (e.g., education achievement in a school district) to larger scales (e.g., educational achievement in the United States as compared with other nations).

- Because there are some areas where data simply may not exist (e.g., certain aspects of the environment) or are very difficult to measure (e.g., certain aspects of culture), a U.S. national indicator system may have an implicit bias in terms of balance towards information that is quantitative and can be measured. From the outset, this would have to be recognized by acknowledging measurement limitations and knowledge gaps. Poor indicator selection or lack of attention to quality, in the context of a highly visible system, raises the stakes in terms of misinformation or unintended consequences that might arise.

- Developing new indicators requires the statutory authority to access the necessary information and should include the legal responsibility to protect privacy.

- Leveraging costly innovative technology to provide an online, user-friendly resource would be crucial for the success of such an effort.

Implementing effective human capital management strategies, such as recruiting and retaining the advanced technical and scientific staff, are key elements in the success of any high-performing organization or national initiative like this one.

Key Indicator Systems Could Help Better Inform the Nation at Many Levels

One of our nation's distinguishing characteristics is unity built out of diversity. This diversity finds its expressions in the multiple levels and branches of government, the different sectors of economic and social activity (i.e., business, nonprofit and government), the varied geographic regions, and the widely ranging ethnic, professional, cultural, and other communities of interest. Another way of putting this is that every individual plays multiple roles in U.S. society (e.g., resident of a city and state, member of an interest group, oremployee working in a sector). In each role, the information needs of individuals will differ significantly. Therefore, it is vital to recognize that a key indicator system for the entire nation would either

- express only U.S. level indicators (e.g., the average national unemployment rate) and coordinate with these elements of our society as they develop indicator systems from their own point of view, or

- include a capability for the people who use the system to obtain not only U.S.-level information, but also information for their community, sector, city, state, or region (e.g., state demographics or unemployment rates for metropolitan areas).

The nation's leaders and concerned citizens are realizing they require better knowledge of what is happening and where we are going to support improved public choices. Although the constituent elements of U.S. society view emerging challenges and opportunities, as well as their choices, from unique and varied points of view, the time may be at hand when it is feasible for many different elements of society to organize information into comprehensive key indicator systems. As this report has demonstrated, citizens, public and private sector groups, and their leaders are encouraging and creating a better overall understanding of their communities, cities, states, and the nation, our society's competitive advantage and capacity to define and respond to challenges and opportunities.

The nation as a whole could benefit from additional elements of society opting to develop and implement key indicator systems to better understand economic, environmental, and social and cultural conditions; trends; levels of progress; and emerging challenges. This could include the identification of knowledge gaps and development of new indicators, identification of trends, and generally a richer information base. A wider range of creative and successful individual efforts would provide a fuller set of experiences and lessons learned so that the nation could learn from successes and avoid common mistakes. Moveover, at the federal level, a comprehensive system could inform a much-needed re-examination of the base of existing programs, politics, functions, and activities. It could also inform the mandated creation of a governmentwide performance plan.

The country can learn a great deal from work already being done. There are likely to be significant gains in efficiency and effectiveness to be gained if these systems learn how to coordinate, share, and leverage experiences and lessons learned. There are critical interrelationships among such systems that need to be recognized and better understood. Many public policy issues are implemented primarily at the local level, where information is translated into action in areas such as schools, jobs, and public safety. Thus, a primary question about a national system for anyone from a local point of view will be: can it provide specific or contextual information, at an appropriate level of disaggregation (e.g., neighborhoods, census tracts, or blocks), that can help my community be better informed?

In addition to pursuing information that can be disaggregated below the national level to elements of U.S. society, it is also important to aggregate information above the national level to obtain a fuller understanding of our nation's position and progress in a global environment and an increasingly globalized economy and society. To see U.S. issues in a global context and to facilitate comparisons with other nations on issues like education, innovation, or health care is likely to require assiduous efforts to develop indicators that can be aggregated at the supranational or global levels, as well as indicators providing comparable information across countries. Many entities within and outside of the United States have been hard at work for years on developing and implementing such indicator systems, especially in the international statistical and scientific communities. Their lessons learned would provide a building block for efforts to develop key indicator systems throughout the United States.

Next Steps

It appears that in addition to Congress and the executive branch, users and providers of information in jurisdictions throughout the United States (e.g., cities, counties, states, and regions) could benefit from the findings in this report. Our work in this area may also be of value to audiences in other nations. Accordingly, our suggested next steps are addressed both specifically to Congress and more generally to these broader audiences.

Encourage Awareness and Education

A substantial effort should be made by various interested parties to make leaders, professionals, and the public more aware of comprehensive key indicator systems and to understand the potential implications for their jurisdiction of interest. Such understandings and awareness could underpin a broader and more informed dialogue on what current systems are contributing and what new systems might contribute to informing our nation. Most importantly, these systems have emerged and endured because concerned citizens and institutions are beginning to come to grips with how to define and make choices on the most important issues and opportunities they face, based on common agreement about their societal aspirations, and a single source of shared factual knowledge. Specific actions to encourage awareness and education could include the following:

- Convening workshops and briefings for public and private sector leaders.
- Holding public hearings around the country to highlight alternative points of view on potential costs and benefits, desired uses, risks, and possibilities.
- Developing a Web-based national clearinghouse on key indicator systems so that interested parties can conveniently access published documents or link directly to Web sites to familiarize themselves with what is currently available.
- Strengthening partnerships between key indicator systems and relevant media, private information providers, and other organizations that have an interest in the dissemination of quality information.

Pursue Additional Research

Even though some comprehensive indicator systems have been in existence for decades, developments over the last decade in information technology (e.g., the World Wide Web) and information management (e.g.,

open systems architectures with enhanced data flexibility) have created significant opportunities to build and sustain key indicator systems. In theory, the possibilities for interested parties to learn from and use public information have increased at the same time as the up-front capital investments required for data aggregation, maintenance and dissemination costs continue to decline.

The formal research on key indicator systems has still left many questions unanswered and, therefore, more research is essential to reducing the risks of failure and increasing the probabilities of success for undertaking such an endeavor. Among these outstanding issues are the following four major categories of questions.

- How much is really known about the design of key indicator systems? For instance, does existing research on topical indicator systems provide lessons for designing them? Is there a predictable model that shows how a well-designed system would develop over time?

- How can key indicator systems be effectively implemented? What are the major differences between implementing one for a small population group as opposed to a large one? How have people have used these systems and for what purposes?

- What value does key indicator systems provide? For example, how much time, money, and effort are required to create them, and are they worth it compared to other needed investments? How does one define the success or failure of a system?

- How significant are key indicator systems for market-based democratic governance? For example, could they change how policy-makers, nonprofit foundations, and even citizens set priorities and make decisions, ranging from resource allocations to career and voting choices?

As it is becoming more feasible for jurisdictions to create such systems, formal research should accelerate. Taking steps to provide support for such research could substantially aid those involved in considering or designing and implementing comprehensive key indicator systems. Specific actions could include the following.

- Coordinating amongst various interested parties to identify a common research agenda for the field of key indicator systems to help increase

the synergy of existing work and guide the direction of future research efforts.

- Creating a comprehensive inventory of past and current research efforts on key indicator systems, including those in other countries.

- Identifying major gaps in the nation's knowledge about key issues and opportunities that can be brought to the attention of leaders and policymakers.

- Generating working prototypes of what a key national indicator system for the United States would look like to flush out the risks and opportunities involved in building such a system.

- Investigating questions that may be specific to the development of a national system for the United States. For example, what will be the respective roles of government, the federal government, business, and the nonprofit sectors in the system? How will key indicator systems developed at different levels of society complement one another?

Support New Initiatives to Develop Key Indicator Systems

A high degree of innovation can take place at local levels, which can help build the nation's body of experience. Local efforts have been particularly creative, for example, in developing indicator systems, such as those focused on quality of life issues, that cut across more traditional topical areas. One possible way to begin creating and developing more comprehensive key indicator systems may be to institutionalize a network or networks of interested practitioners as a "community of practice." Then, as people become more educated about these systems, they would have an organized resource available to tap into accumulated expertise. Such a community of practice or a clearinghouse could help speed learning curves, reduce risks, and avoid reinventing solutions. Specific actions could include the following:

- Developing a national community of practice of those who study and implement key indicator systems at all levels to keep practitioners up to date on the latest research.

- Participating in an international community of practice, like the first World Indicators Forum being sponsored by the OECD, to learn from what is going on abroad and share the U.S. experience with others.

- Identifying criteria to define what success means for a system, specific best practices and evaluation techniques, all of which could be included in a sourcebook or practice guide for indicator system development that would distill existing knowledge for the benefit of those new to the field.

- Considering funding an effort within the federal statistical system, under the aegis of the Interagency Council on Federal Statistics or the Census Bureau, to aggregate a common set of key official statistics—based on the advice of an independent panel of experts—that would build on the lessons of the White House Briefing Room, the American Fact Finder, and Fedstats. Although such a system could not include private sector sources, it would represent a major advance toward a national comprehensive key indicator system.

Widen the Dialogue on Options for a U.S. National System

At this stage, it is important for a broader dialogue to begin that includes Congress, the administration, and other major suppliers, users, and providers of information. Such a dialogue could provide an avenue for exploring complex issues, such as the potential benefits, costs, and risks involved, in a meaningful way. Involving interested members of Congress and the executive branch would be critical to ensuring collaboration across boundaries, facilitating ongoing attention to strategically leverage national information assets, and position the nation to better meet emerging challenges and take advantage of upcoming opportunities. Specific actions could include the following.

- Hold public hearings or private forums to discuss and debate options pertaining to a key national indicator system for the United States.

- Convene a national conference of practitioners and potential stakeholders to (a) share knowledge on existing systems, (b) debate and discuss whether and how to develop a U.S. system, and (c) help identify the major topical areas that would be included in a possible national system.

- Charge the Interagency Council on Federal Statistics with coordinating a series of discussions between those developing comprehensive key indicator systems and those who operate topical systems on issues of mutual concern and interest.

- Encourage discussions between the private groups now undertaking the development of a national comprehensive key indicator system,

members of Congress, and executive branch officials on the role of the federal government in investigating and potentially supporting such a system.

U.S. National Topical Indicator Systems Included in This Study

Topical area and name of indicator system	History and purpose	Description of indicator system	Managing organization and key stakeholders
Economy: **Business Cycle Indicators**	First published for government use in 1961 and for public use in 1968, and currently updated monthly, its purpose is to forecast and analyze the onset of and recovery from economic recessions.	This system provides the official U.S. composite leading, coincident, and lagging indexes (three summary statistics for the U.S. economy). The indexes represent key elements of an analytic system designed to signal peaks and troughs in the business cycle, each consisting of 4 to 10 individual indicator series.[a]	Managed by the Conference Board (CB) since 1995.[b] CB has an advisory panel of academic, government, and private sector experts providing guidance in all areas relating to the Business Cycle Indicators. CB gathers data from many sources, about 80 percent from official U.S. government sources, such as the Bureau of Economic Analysis, the U.S. Census Bureau, the Bureau of Labor Statistics, and the Federal Reserve Board; and the remainder from private sources, including Standard & Poor's and the University of Michigan.
Science and Engineering: Science and Engineering Indicators	First published in 1973 and updated every two years, its purpose is to provide information on the status of U.S. science, engineering, and technology.	This system provides a broad-based set of quantitative information about U.S. science, engineering, and technology. Indicators are grouped under eight topical headings, such as science and engineering labor force; and industry, technology, and the global marketplace.[c]	Managed by the National Science Board[d] (the board of the National Science Foundation). Members of the National Science Board are selected to be broadly representative of the views of national science and engineering leadership based on their distinguished service in these areas.
Health: Healthy People	First issued in 1979 and updated in 1980, it has been revised once every decade since then. Its purpose is to provide a comprehensive set of disease prevention and health promotion objectives for the nation to achieve, and indicators with which to measure progress toward them.[e]	Provides a national approach to health improvement that integrates a comprehensive system of two overarching goals as well as objectives in 28 focus areas, such as cancer, for improving Americans' health. The overarching goals are to increase quality and years of healthy life and eliminate health disparities. Healthy People currently focuses on 10 leading health indicators to highlight major health priorities, including physical activity.[f]	Managed by the Department of Health and Human Services (HHS). HHS uses a participatory process to stimulate broad multisector involvement by federal, state, local, and community agencies, as well as the private sector, through the Healthy People Consortium and its local chapters.[g] Most states have replicated the Healthy People process and have their own plans.

(Continued From Previous Page)

Topical area and name of indicator system	History and purpose	Description of indicator system	Managing organization and key stakeholders
Children and Families: America's Children: Key National Indicators of Well-Being	Initiated in 1997, its purpose is to provide comprehensive information on the health and well-being of children. The full report is updated every two years with brief updates on select indicators issued in between. All data on its Web site are updated annually.	Provides a comprehensive set of 25 key indicators measuring critical aspects of children's lives, grouped in four sections: economic security, health, behavior and social environment, and education. Also includes nine "contextual measures" describing the population, family, and environmental context in which children are living.[h]	Managed by the Federal Interagency Forum on Child and Family Statistics, which consists of 20 federal agencies that deal with children's issues.[i]
Aging: **Older Americans: Key Indicators of Well-Being**	Initiated in 2000 with occasional planned updates, its purpose is to track the health and well-being of Americans aged 65 and over. (Next update is expected in November 2004.)	Provides a set of 31 key indicators to measure critical aspects of older Americans' lives. Indicators are presented in five sections: population, economics, health status, health risks and behaviors, and health care.[j]	Managed by the Federal Interagency Forum on Aging-Related Statistics, which consists of numerous federal agencies that deal with aging issues.[k]

Source: GAO analysis.

[a]The composite business cycle indexes include 21 component series. The 10 *leading index indicators* are average weekly hours, manufacturing; average weekly initial claims for unemployment insurance; manufacturers' new orders, consumer goods and materials; vendor performance, slower deliveries diffusion index; manufacturers' new orders, nondefense capital goods; building permits, new private housing units; stock prices, 500 common stocks; money supply (M2); interest rate spread, 10-year Treasury bonds less federal funds (percentage); and index of consumer expectations. The 4 *coincident index indicators* are employees on nonagricultural payrolls; personal income less transfer payments; index of industrial production; and manufacturing and trade sales. The 7 *lagging index indicators* are average duration of unemployment; inventories to sales ratio, manufacturing and trade; change in labor cost per unit of output, manufacturing (percentage); average prime rate charged by banks (percentage); commercial and industrial loans outstanding; consumer installment credit outstanding to personal income ratio; and change in consumer price index for services (percentage). Historically, cyclical turning points in the leading index occur before, turning points in the coincident Index about the same time, and turning points in the lagging index after those in aggregate economic activity.

[b]The CB is a private research and business membership group of over 2700 corporate and other members that was chosen by the Bureau of Economic Analysis (BEA), after a bidding process, to be custodian of the official Business Cycle Indicators. Assuming responsibility for computing them was deemed, by the CB, to support its mission to improve the business enterprise system and to enhance the contribution of business to society. The CB's first independent release was on January 17, 1996. From October through December 1995, CB and BEA released the indicators jointly.

[c]The report consists of two volumes. Volume 1 consists of topical analytic essays on key trends in science and technology. Volume 2 is an Appendix of Tables that contains 225 statistical measures. Reports and statistical measures both are grouped under the same eight headings: (1) elementary and secondary Education; (2) higher education in science and engineering; (3) science and engineering labor force; (4) U.S. and international research and development (R&D): funds and technology linkages; (5) academic R&D: (6) industry, technology and the global marketplace; (7) science and technology: public attitudes and understanding; and (8) state indicators.

[d]The National Science Board is responsible, under amendments to the National Science Foundation Act of 1950, for developing this biennial report to be rendered to the President for submission to Congress.

[e]Originally published in 1979 as *Healthy People: The Surgeon General's Report*, and updated in 1980 as *Promoting Health/ Preventing Disease: Objectives for the Nation,* and in 1990 as *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*.

[f]*Healthy People 2010: Understanding and Improving Health* (issued in 2000), sets forth two overarching goals—(1) increase quality and years of healthy life and (2) eliminate health disparities—with 467 specific objectives to improve the health of Americans that are organized into 28 focus areas. It also consists of 10 leading health indicators to highlight progress toward major health priorities. The focus areas are: access to quality health care; arthritis, osteoporosis, and chronic back conditions; cancer; chronic kidney disease; diabetes; disability and secondary conditions; educational and community-based programs; environmental health; family planning; food safety; health communication; heart disease and stroke; HIV; immunization and infectious diseases; injury and violence prevention; maternal, infant, and child health; medical product safety; mental health and mental disorders; nutrition and overweight; occupational safety and health; oral health; physical activity and fitness; public health infrastructure; respiratory diseases; sexually transmitted diseases; substance abuse; tobacco use; and vision and hearing. The 10 leading indicators are physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care.

[g]A central principle of Healthy People is its participatory process, which stimulates broad multisector involvement in defining and implementing objectives by federal, state, local, and community agencies as well as private, voluntary, and other community-based organizations. At the federal level, lead responsibility for each of the 28 focus areas is assigned to an agency of HHS's Public Health Service. These lead agencies have responsibility for engaging multiple agencies in attaining objectives, forging partnerships with states and the private and voluntary sectors, and monitoring progress by collecting necessary data. States are encouraged to develop state-specific goals and objectives tailored to their individual needs and conditions, and at the local level, model standards, linked to Healthy People objectives, provide public health agencies with tools to determine community health issues.

[h]Nine contextual measures describe the changing population, family, and environmental context in which children are living, and 25 indicators depict the well-being of children in the areas of economic security, health, behavior and social environment, and education. The indicators, grouped by domain, are: (1) population and family characteristics: child population, children as a proportion of the population, racial and ethnic composition, children of at least one foreign-born parent, difficulty speaking English, family structure and children's living arrangements, births to unmarried women, child care, and children's environments; (2) indicators of children's well-being: (a) economic security indicators: child poverty and family income, secure parental employment, housing problems, food security and diet quality, and access to health care; (b) health indicators: general health status, activity limitation, overweight, childhood immunization, low birth weight, infant mortality, child mortality, adolescent mortality, and adolescent births; (c) behavior and social environment indicators: regular cigarette smoking, alcohol use, illicit drug use, and youth victims and perpetrators of serious violent crimes; (d) education indicators: family reading to young children, early childhood care and education, mathematics and reading achievement, high school academic course taking, high school completion, youth neither enrolled in school nor working, and higher education.

[i]Members of the Federal Interagency Forum on Child and Family Statistics include officials from 20 federal agencies, including the Departments of Agriculture (Food and Nutrition Service), Commerce (Census Bureau), Defense (Defense Manpower Data Center), Education (National Center for Education Statistics), HHS (Administration for Children and Families, Agency for Healthcare Research and Quality, National Center for Health Statistics and three other agencies), Housing and Urban Development (Office of Policy Development and Research), Justice (Bureau of Justice Statistics and two other agencies), Labor (Bureau of Labor Statistics and 1 other agency), and Transportation (National Highway Traffic Safety Administration), plus the Environmental Protection Agency (Office of Environmental Information), National Science Foundation (Division of Science Resources Statistics), and the Office of Management and Budget.

[j]Thirty-one indicators in five groups are (1) population: number of older Americans, racial and ethnic composition, marital status, educational attainment, living arrangements; (2) economics: poverty, income distribution, sources of income, net worth, participation in the labor force, and housing expenditures; (3) health status: life expectancy, mortality, chronic health conditions, memory impairment, depressive symptoms, self-rated health status, and disability; (4) health risks and behaviors: social activity, sedentary lifestyle, vaccinations, mammography, dietary quality, and criminal victimization; and (5) health care: health care expenditures, components of health care expenditures,

out-of-pocket health care expenditures, access to health care, use of health care services, nursing home utilization, and home care.

[k]Members of the Federal Interagency Forum on Aging-Related Statistics include the original core agencies—U.S. Census Bureau, HHS's National Center for Health Statistics and the National Institute on Aging—along with HHS's Administration on Aging, Centers for Medicare & Medicaid Services, and the Office of the Assistant Secretary for Planning and Evaluation; Bureau of Labor Statistics; Social Security Administration; and the Office of Management and Budget.

Overview of Social and Cultural Indicators

The United States does not have a national report on key indicators that covers the entire social and cultural domain, which includes health, education, and public safety, among other topical areas. Moreover, there is no regular, broad reporting at the national level that looks across various social and cultural indicators to describe the overall social and cultural conditions of the nation, nor are there official mechanisms to review, analyze, and interpret diverse social and cultural indicators as they relate to each other and their implications for society.

However, an array of diverse social and cultural indicators can be found in the United States as parts of topical area systems at the national level, such as Healthy People. In addition, many comprehensive key indicator systems below the national level in the United States report on a host of key social and cultural indicators, as do a variety of systems outside the nation, including numerous European countries and multinational and supranational entities, such as the United Nations Development Programme's reporting on the Human Development Index in the *Human Development Report*, which measures countries' overall achievements in longevity, knowledge, and standard of living.[1] These systems define the social and cultural domain in different ways, with some systems defining the domain narrowly to exclude indicators about the economy and the environment while others define it broadly to include economic and environmental indicators, meaning society as a whole. Over time, it has been difficult to reach consensus on social and cultural issues in part due to the value judgments that surround them. As described in chapter 1, in the past there was a decade-long effort in the United States to produce a national societal indicators report, but that effort did not endure beyond the early 1980s and has not been attempted since.

[1] United Nations Development Programme, *Human Development Report 2003* (New York: 2003). For more information, see http://hdr.undp.org/reports/global/2003.

National-Level Indicator Systems with a Focus on Social and Cultural Information

The United States has national-level indicator systems and statistical volumes that report on select indicators in specific topical areas within the social and cultural domain, although there is no national-level indicator report covering this entire domain. An example is Healthy People, which is led by the Department of Health and Human Services (HHS) and includes 10 leading health indicators that are used to measure the health of the nation over a 10-year period.[2] Each of the 10 Leading Health Indicators has one or more objectives associated with it, which are intended to reflect the major health concerns in the United States at the beginning of the 21st century. Leading health indicators include physical activity, overweight and obesity, tobacco use, substance abuse, and responsible sexual behavior.

Another example of an indicator system is the Federal Interagency Forum on Aging-Related Statistics. This forum was initially established in 1986 with the goal of bringing together federal agencies to collaborate on improving aging-related indicators and includes the National Institute on Aging, the National Center for Health Statistics, the U.S. Census Bureau, the Administration on Aging, the Social Security Administration, the Centers for Medicare & Medicaid Services, and the Office of Management and Budget, among other agencies. The forum published its first report in 2000, *Older Americans 2000: Key Indicators of Well-Being*, which focuses on important indicators in the lives of older people along topics such as population, economics, health status, health risks and behaviors, and health care.[3]

[2] For more information, see http://www.healtypeople.gov.

[3] Federal Interagency Forum on Aging-Related Statistics, *Older Americans 2000* (Washington, D.C.: 2000). For more information, see http://www.agingstats.gov.

In addition, various federal agencies produce periodic reports that present indicators of national trends and social and cultural conditions in American society, such as *The Condition of Education*, which is produced by the National Center for Education Statistics at the Department of Education,[4] and *Crime in the United States*, which is produced by the Federal Bureau of Investigation (FBI) based on the Uniform Crime Reporting system.[5] The Census Bureau also collects data and produces many publications that pertain to social and cultural issues. For example, the Census Bureau administers the following surveys: the National Crime Victimization Survey, conducted on behalf of the Bureau of Justice Statistics, which collects information from households on the frequency, characteristics, and impact of criminal victimization; the Current Population Survey, which is conducted for the Bureau of Labor Statistics and provides the primary source of information on labor force characteristics of the U.S. population; and the Survey of Income and Program Participation, which collects information on income, the labor force, program participation and eligibility, and demographics to measure the effectiveness of existing government programs, estimate future costs and coverage for government programs (such as Food Stamps), and provide improved income distribution statistics. Further, in 2002, the Census Bureau conducted the Survey of Public Participation in the Arts. More than 17,000 adults over age 18 were asked whether they had read novels, short stories, poetry, or plays in the last 12 months that were not required for work or school. Similar surveys were conducted in 1982 and 1992.

Some private research organizations and policy institutes produce national-level reports on social and cultural indicators in various subject areas in the United States. For example, the Annie E. Casey Foundation, a private charitable organization, produces the annual *Kids Count Data Book*, which presents national- and state-level indicators on the status of America's children.[6] The report's key indicators reflect a wide range of factors affecting the well-being of children, such as health, income, and educational attainment. In addition, HHS's Office of the Assistant

[4] National Center for Education Statistics, *The Condition of Education 2004* (Washington, D.C.: 2004). For more information, see http://nces.ed.gov/programs/coe/.

[5] The latest available report (as of Sept. 2004) is Federal Bureau of Investigation, *Crime in the United States 2002* (Washington, D.C.: 2002). For more information, see http://www.fbi.gov/ucr/ucr.htm.

[6] Kids Count, *Kids Count Databook 2004* (Baltimore: Annie Casey Foundation, 2004). For more information, see http://www.aecf.org/kidscount/.

Secretary for Planning and Evaluation recently provided funding so that the not-for-profit organization Child Trends, Inc., could produce a forthcoming indicators report describing the conditions of children and families in the United States as a whole, entitled *Social Indicators: Measures of Children, Family, and Community Connections*. This report measures family conditions and outcomes along the lines of several "domains," including family structure, school involvement and civic engagement, and social connections.

Social and Cultural Indicators as Parts of Comprehensive Key Indicators Systems

Many comprehensive key indicator systems at the subnational level in the United States report on a host of key social and cultural indicators. The Boston Indicators Project is an example of a citywide comprehensive key indicator system that includes a variety of such indicators. Specifically, the project tracks numerous indicators that are grouped into 10 categories, and a number of the categories are in the social and cultural domain: civic health, cultural life and the arts, education, housing, public heath, and public safety. Examples of specific social and cultural indicators tracked in the Boston Indicators Project include measures of racial and ethnic diversity, residents' trust in neighbors, voter participation, strength of the not-for-profit sector, a "creativity index," and attendance at cultural events.

Further, the Jacksonville Community Council, Inc. (JCCI) maintains a regional comprehensive key indicator system—called Indicators of Progress—that includes numerous social indicators for five counties in northeastern Florida. In the *2003 Quality of Life Progress Report*, JCCI reported on 115 indicators that reflect trends in nine areas, of which several are part of the social and cultural domain: achieving educational excellence; promoting social well-being and harmony; enjoying arts, culture, and recreation; sustaining a healthy community; maintaining responsive government; and keeping the community safe.[7] Some examples of social indicators tracked in these areas include the extent of racism, the divorce rate, library use, attendance at arts events, health care and public health indicators, voter registration, crime, and motor vehicle accidents. For example, a goal related to social and cultural issues in the report is keeping the community safe, and one of the measures of this goal is the index of crimes per 100,000 people.

[7] Jacksonville Community Council, Inc., *2003 Quality of Life Progress Report* (Jacksonville, Fla.: 2003).

An example of a state-level comprehensive key indicator system that includes extensive social indicators is the State of Minnesota's Minnesota Milestones system. The indicators in Minnesota Milestones are grouped into four goal categories, and two of the four relate directly to social and cultural conditions. Each of these four categories has four to five specific goals under it. For example, under the first category, "people," is the goal "families will provide a stable, supportive environment for their children," which is measured by indicators such as satisfaction with child care, child abuse and neglect, and teen pregnancy. Under the second category, "community and democracy," is the goal "our communities will be safe, friendly, and caring," which is measured by indicators such as sense of safety, violent and property crime, and volunteer work.[8,9]

Broad-Based Social Indicator Systems Outside the United States

Unlike the United States, many other countries have implemented broad-based social reporting systems, as have some multinational and supranational entities, such as the United Nations and the World Bank. Country examples include Germany, the United Kingdom, Australia, Canada, the Netherlands, and France.[10] The national social reporting systems vary in terms of the extent to which they include analysis, discussion of implications for public policy, or targeted goals for future social change. For example, Germany's *Datenreport* is based on indicators drawn from the German System of Social Indicators, which was first developed by the Center for Survey Research and Methodology (ZUMA) in the 1970s.[11] The purpose of this system is to continually monitor the state of and changes in objective living conditions and subjective quality of life in German society along the lines of 13 "life domains" plus an overall "total

[8] The two other goal categories are "economy" and "environment."

[9] Since we completed our work, Minnesota Milestones ceased to be an active system. State officials told us that the Minnesota Milestones Web site will be maintained but there are no plans to update the data in the near future.

[10] The Australian Bureau of Statistics began to publish *Australian Social Trends* in 1994, Statistics Canada began to publish *Canadian Social Trends* in 1986, France's *Institut Nationale de la Statistique et des Economique* began to produce the *Donnes Sociales* in 1973, the German government began producing *Datenreport* in 1983, the Netherlands' Social and Cultural Planning Office began to produce the *Social and Cultural Report* in 1974, and the United Kingdom's Central Statistical Office began to produce *Social Trends* in 1970.

[11] Federal Statistical Office of Germany, *Datenreport 2004* (Wiesbaden, Germany: 2004).

life situation" category.[12] Some observers have concluded that some European countries have developed broad-based social indicators systems at the national level due to factors such as the existence of extensive, long-standing social welfare policies; a more centralized tradition of government, including centralized statistical agencies; a history of reporting on various social conditions nationally; and concentrations of people in smaller geographic areas.

Moreover, under a contract from the European Union (EU), Germany's ZUMA developed a European System of Social Indicators, to be used to monitor social changes in Europe along 14 life domains, including, among others, population, households, and families; housing; transport; leisure, media and culture; social and political participation and integration; and education and vocational training. The system covers 15 EU member states plus Norway; Switzerland; the Czech Republic; Hungary; Poland; and for comparative purposes, Japan and the United States.

The EU is placing increased emphasis on social indicators and social reporting, due to the great diversity of ethnic, racial, and religious populations that are located throughout Europe, along with vast differences in the levels of economic development among the countries. For example, the EU has a comprehensive European Structural Indicators system consisting of a broad range of key indicators from the social and cultural, economic, and environmental domains, which is designed to measure progress toward the 2000 Lisbon Strategy.[13] The EU is also developing a comprehensive sustainable development indicator system, which will include extensive key social indicators.

Work on social and cultural reporting, and related indicators, has also been conducted by multinational entities like the United Nations and the World

[12] Six of the 13 life domains consist of sectors that are considered part of the economic and environmental domains for this report (socioeconomic status and subjective class identification, labor market and working conditions, income and income distribution, consumption, transportation, and environment). The other seven life domains fall into what we have termed the overall social and cultural domain; and these are population, housing, health, education, social and political participation, crime and public safety, leisure, time use and media consumption.

[13] The Lisbon Strategy is an agreement among EU member countries that laid out goals and objectives for all EU members. The Lisbon Strategy is dedicated to economic, social, and environmental renewal in the EU and contains goals that were agreed to by member countries. The EU reports on progress toward achieving these goals every spring.

Bank. The United Nations Secretariat's Statistics Division compiles social indicators from national and international sources for a wide range of subject matter fields. The United Nations Research Institute for Social Development (UNRISD) was created in 1963 as part of the first United Nations Development Decade, which stressed a "new approach" to development based on the idea that economic indicators were insufficient to measure the effects of progress in developing countries.

The annual *Human Development Report* of the United Nations Development Programme—first produced in 1990—introduced the Human Development Index (HDI), which includes social measures. The HDI is a summary composite index that measures a country's average achievements in three aspects of human development: longevity (as measured by life expectancy at birth), knowledge (as measured by a combination of the adult literacy rate and the combined primary, secondary, and tertiary gross enrollment ratio), and standard of living (measured by gross domestic product per capita). In addition, the World Bank annually publishes the *World Development Report*, which includes data on social indicators for many countries, and maintains "social indicators of development," a set of social indicators for over 170 economies, which is intended to describe the social effects of worldwide economic development.[14]

Defining and Gaining Consensus on Social Indicators

We also observed variation in terms of the topical areas that different organizations include as social and cultural indicators. The social and cultural domain can be defined narrowly, to exclude economic and environmental indicators, or broadly to include indicators from the economic and environmental domains. For instance, a comprehensive system might define the social and cultural domain to just include indicators pertaining to health, public safety, social welfare, the arts, children, and aging.

An example is Australia's comprehensive key indicator system—Measures of Australia's Progress—which organizes its social and cultural domain to include various areas of social concern including health, education and training, work, housing, financial hardship, family and community, crime, governance, democracy, and citizenship. The other components of Australia's comprehensive system are indicators relating to the economic

[14] World Bank Group, *World Development Report 2004: Making Services Work for Poor People* (Washington, D.C.: 2004).

and environmental domains. The EU's European Structural Indicators system also makes a distinction between economic, environmental, and social and cultural issues.

In contrast, a number of social indicator systems are based on broadly defining the term to mean indicators that pertain to any dimension of society, even including economic and environmental indicators. For example, both the European System of Social Indicators and the German System of Social Indicators define the social and cultural domain broadly to include a variety of economic and environmental indicators along with what are typically considered social and cultural indicators, such as public safety or health. In the past, the social domain was conceptualized more broadly in the United States than it is today. The United States social indicators movement of the 1960s and 1970s developed in some respects as a response to the dominance of economic indicators, based on the claim that economic indicators alone were inadequate to monitor society comprehensively. Specifically, the *Social Indicators III* report[15] (the last of the three social reports published by the U.S. government) defined 11 subject areas related to social conditions in the United States, and included environment ("housing and the environment") and economic ("work" and "income and productivity") topics among them.

The term cultural indicator is sometimes used interchangeably with the term social indicator. It also has a variety of meanings as it has been used by different groups over time. Some indicator systems have conceptualized cultural indicators as being related to the arts and the humanities. For example, *Social Indicators III* took the approach of describing cultural conditions through indicators related to the arts, such as attendance at performing arts events and visits to museums.[16]

Another effort that uses an arts and humanities-based interpretation of cultural indicators is the Arts and Culture Indicators in the Community

[15] Department of Commerce, *Social Indicators III: Selected Data on Social Conditions and Trends in the United States* (Washington, D.C.: December 1980).

[16] The indicators chosen to measure cultural activity in the U.S. federal government social reports changed from the second to the third report. In the second report, *Social Indicators 1976*, the cultural indicators did not just center on the arts. The indicators included, in addition to the number of concerts played and attendance at concerts, the number of persons employed in knowledge-producing or knowledge-disseminating occupations, the proportion of women in those occupations, the percentage of the civilian labor force made up of scientists and engineers, and book production (disaggregated by subject area).

Building Project (ACIP), which was launched in 1996 by the Urban Institute and the National Neighborhood Indicators Partnership (NNIP), with support from the Rockefeller Foundation. ACIP is an effort to develop neighborhood-level indicators of arts and culture for use in local planning, policy making, and community building, and seeks to integrate arts and culture into quality of life measures.

The 2002 *Creative Community Index* of the Cultural Initiatives Silicon Valley, provides an additional example of cultural indicators in which the arts and cultural activities are important.[17] The *Creative Community Index* resulted from a research project to develop quantitative measures of cultural participation and creativity in the region. It contains over 30 indicators designed to measure the health and vitality of cultural activities and the importance of creativity to the region's vitality.

In contrast to the use of cultural indicators as pertaining to the arts, William J. Bennett's *Index of Leading Cultural Indicators 2001* conceptualizes culture as the overall state of American culture. This work reports on a wide range of topics pertaining to the state of American society and culture, such as out-of-wedlock births, crime, illegal drug use, marriage and divorce, educational achievement, child poverty, youth behaviors, civic participation, popular culture, and religion.[18]

Further, the General Social Survey (GSS) is designed to measure and report on the views and attitudes of Americans across a wide range of topics and the state of our culture and society.[19] It is collected approximately every 2 years by NORC, a national organization for research at the University of Chicago (formerly known as the National Opinion Research Center), and has been administered 24 times since 1972. Specifically, its millennium survey wave in 2000 covered topics such as users of the Internet, assessments of external and internal security threats and the balancing of security and civil liberties, how people assess their physical and mental health, sexual behavior and drug use, and evaluating the functions of local churches. The GSS has been sponsored by a number of public and private organizations, including the National Science Foundation, the Centers for

[17] Cultural Initiatives Silicon Valley, *Creative Community Index* (San Jose, Calif.: 2002). For more information, see http://www.ci-sv.org/cna_index.shtml.

[18] William J. Bennet, *Index of Leading Cultural Indicators* (New York: 2001).

[19] For more information, see http://www.norc.uchicago.edu/projects/gensoc.asp.

Disease Control and Prevention, and the MacArthur Foundation, among others.

Programs of the United Nations' Educational, Scientific, and Cultural Organization (UNESCO) and other United Nations' agencies demonstrate another approach to cultural indicators. For example, UNESCO sponsored a culture and development project with the United Nations Research Institute for Social Development from 1996 through 1997. The purpose of the project was to promote better understanding of the relationship between various countries' cultures and their development, and it included research on cultural indicators of development. Cultural indicators and statistics are also included in UNESCO's *World Culture Report*, issued in 1998 and 2000.[20]

Accordingly, it could be difficult for organizers of an indicator system to reach consensus on the scope of a social and cultural indicator system, or on what variables to measure. The diversity of the ways in which social and cultural indicators have been conceptualized and used could complicate efforts to develop a national social and cultural indicator system in the United States, as they appear to have done in the past. There might also be disagreement about whether particular characteristics of society are considered positive attributes as opposed to undesired outcomes. For example, obtaining agreement on a select set of social and cultural indicators has tended to be controversial because some of them deal with sensitive moral, racial, or religious issues, such teen pregnancy and drug use.

Selecting the societal conditions that should be measured or included in a system involves some value judgments and subjectivity, and is often colored by factors such as religious or moral beliefs. Moreover, questions exist as to how to define the parameters of the social and cultural domain, ranging from narrow to broad definitions, and whether to include cultural elements.

[20] See http://www.unesco.org/culture/worldreport.

Comprehensive Key Indicator Systems Included in This Study

Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
Baltimore's Vital Signs	Baltimore, Md. Approximately 640,000	Balitmore's Vital Signs indicators measure progress toward a shared vision and desired outcomes for strong neighborhoods in Baltimore. Indicators are grouped as follows: housing and community development; children and family health; safety and well-being; workforce and economic development; sanitation; urban environment; transit, education, and youth; and neighborhood action and sense of community. In addition, the One Stop Shop program provides access to the Vital Signs data and other data about Baltimore and its neighborhoods from a variety of sources.	(Public/Private) Baltimore Neighborhood Indicators Alliance—a collaborative of several private and public organizations.	Initiative began in 2000. First indicators report in 2002.	Reported annually.
Boston Indicators Project	Boston, Mass. Approximately 590,000 (for the City of Boston)	Indicators measure progress toward shared goals for Boston and provide comprehensive information about Boston's progress in meeting goals in civic health, cultural life and the arts, economy, education, environment, housing, public health, public safety, technology, and transportation. Crosscutting indicators are presented in neighborhoods, children and youth, competitive edge, race and ethnicity, and sustainable development. Indicators also compare some issues to the state as a whole and to those in selected U.S. cities.	(Public/Private) Boston Foundation, a large not-for-profit community foundation, in partnership with three public organizations: the City of Boston, Boston Redevelopment Authority, and Metropolitan Area Planning Council.	Initiative began in 1997. First report in 2000.	Reported every 2 years. Periodic updates of Web site information.
Burlington Legacy Project	Burlington, Vt. Approx. 39,000	Indicators measure progress and monitor trends in areas (e.g., economy, neighborhoods, governance, youth and life skills, and environment) that citizens of Burlington value based upon a comprehensive plan to guide change for the economic, environmental, and social health of Burlington.	(Public/Private) Burlington Mayor's Office, Community Economic Development division. There is also in-kind support from a partnership with the University of Vermont.	Initiative began in 1999. First report in 2000.	Reported annually. Periodic updates of Web site information.

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
Chicago Metropolis 2020	Chicago metropolitan area Approx. 8,090,000	Indicators assess progress toward quality of life goals for the Chicago metropolitan area (e.g., regional economy, transportation and land use, housing, community life, education, and the natural environment). Indicators also serve as benchmarks for decision makers to consider what actions are needed to sustain Chicago's status as a globally competitive region.	(Private) Chicago Metropolis 2020, a not-for- profit organization, initiated by the Commercial Club of Chicago, a membership organization of leading area business and civic leaders, with an executive council.	Initiative began in 1996. First report in 1999.	Reported annually through 2002. Frequency of future reports is uncertain.
Neighborhood Facts	Denver, Colo. Approx. 560,000	Provides detailed information and indicators on Denver's 77 neighborhoods. Information resources include data tables, maps, and graphs about each neighborhood's population, housing, economic, and education characteristics, and the health and safety of its residents.	(Private) Piton Foundation—a corporate foundation of the Denver-based Gary-Williams Energy Corporation.	First report issued in 1994.	Reported every 5 years. Web site information updated on a quarterly basis.
Hennepin County Community Indicators	Hennepin County (Minn.) Approx. 1,120,000	Indicators are linked to the mission, vision, and goals of Hennepin County government to measure progress (i.e., people are healthy, protected and safe, self-reliant, assured due process, mobile, and engaged in the community); identify areas for improvement; and foster a dialogue among businesses, not-for-profit organizations, faith-based communities, and other units of government.	(Public) Hennepin County Office of Planning and Development.	Initiative began in 1995.	Reported annually until 2000. Reported every 2 years since 2000.
Community Atlas	Hillsborough County, Fla. (Tampa Bay, Fla. area) Approx. 1,070,000	Indicators measure quality of life at the neighborhood level to assist various community stakeholders, including citizens, government, business representatives, and academics in community planning. Indicators cover economics, infrastructure, information sharing, civic engagement, arts and culture, diversity, education, government, health, the environment, visual/physical design, and economics.	(Public/Private) Collaborative effort led by the University of South Florida Center of Community Design and Research. Partners include faculty from the University's Department of Geography, the University's College of Arts and Sciences' University Community Initiative, and "Tomorrow Matters!"—a local citizen's group.	Initiated in 1997.	Planned report. Web site information updated periodically.

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
Social Assets and Vulnerabilities Indicators (SAVI)	Indianapolis, Ind., region Approx. 1,600,000	Indicators and related data provide comprehensive and accessible information on "assets" (e.g., agencies, programs, and facilities in the community) and "vulnerabilities" (e.g., demographics and social characteristics of the community) for the Indianapolis metropolitan area. By creating a common source for reference geographies, such as school districts, transportation routes, health department districts and service areas, SAVI reduces redundancy in data development efforts and ensures that stakeholders (e.g., local level officials and planners) are working with the same reference information.	(Public/Private) Polis Center, an affiliate of Indiana University-Purdue University at Indianapolis.	Project initiated in 1993.	No formal report. Continual updating of Web site information.
Indicators for Progress	Five counties that comprise the Jacksonville, Fla. region Approximately 1,200,000	The indicators help monitor progress toward a quality of life vision for the Jacksonville, Fla. metropolitan area. Goals and related indicators cover the following topics: achieving educational excellence; growing a vibrant economy; preserving the natural environment; promoting social well-being and harmony; enjoying arts, culture, and recreation; sustaining a healthy community; maintaining responsive government; moving around efficiently; and keeping the community safe. Trends are analyzed and action is taken to address issues. The project engages diverse citizens groups in open dialogue, research, consensus building, and leadership development to improve quality of life.	(Public/Private) Jacksonville Community Council, Inc. (JCCI)—a not-for-profit organization. JCCI partners with the City of Jacksonville, the regional United Way, and the Chamber of Commerce.	Project initiated in 1985.	Reported annually.
King County Benchmarks	King County Wash. (Seattle) Approx. 1,760,000	Indicators monitor progress toward countywide planning goals for the economy, environment, affordable housing, land use, and transportation, to improve the quality of life in King County. Indicators are reported at the national, state, and county levels to offer insights into the direction and extent of changes in the region for policy, planning, and budget decisions.	(Public) King County Office of Budget.	Project initiated in 1990. First report in 1996.	Reported annually from 1996 through 2002. Since 2003, reports are shorter and published on specific indicator topics throughout the year.

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
Milwaukee Neighborhood Data Center	Milwaukee, Wis. metropolitan area Approx. 590,000	Provides comprehensive local-level statistics and indicators and analysis serving the Milwaukee area. Topical areas include housing, employment, education, school readiness, health, family economic status, and civic engagement. The center helps community organizations understand data to better target their own resources or to assess program outcomes.	(Private) Non-Profit Data Center of Milwaukee.	Project initiated in 1991.	No formal report. Information updated periodically.
New York City Social Indicators	New York City Approx. 8,080,000	Indicators provide information about New York City (i.e., demographics, economy and employment, public safety, health, education and culture, poverty and social services, housing and infrastructure, and the environment), trends over the current and previous 5 years and comparisons with other areas, and a narrative summarizing the economic, social and cultural, and environmental health of the city.	(Public) New York City Department of City Planning.	Initiated in 1989. First report in 1992.	Reported annually.
Compass Index of Sustainability	Orange County Fla. (Greater Orlando) Approx. 965,000	Indicators measure progress toward sustainable development goals for the region and for the health and vitality of the community. Sustainable development goals aim to show the interconnectedness of the following: nature (i.e., environmental quality, ecosystem health, natural resources and beauty); economy (i.e., production of goods and services that make livelihoods possible and lives comfortable, including transportation, infrastructure, employment, and economic security); society (i.e., collective dimension of human life, including government, schools, public safety, and stability); and well-being (i.e., health, long life, satisfaction and optimism, and social relationships).	(Private) Healthy Community Initiative—a private not-for-profit organization.	Initiated in 1992.	Reported every 2 years.
Portland Multnomah Benchmarks	Portland, Oreg. and Multnomah County, Oreg. Approx. 678,000	The benchmarks, based upon the statewide Oregon Benchmarks program, gauge conditions in the community and measure progress related to the visions of the City of Portland and Multnomah County in the economy, education, environment, governance and civic participation, health and families, public safety, and urban vitality. Benchmarks are developed to encourage community organizations to focus on outcomes and increase collaboration.	(Public) City Auditor's Office of Portland.	Initiated in 1993.	Reported every 2 years.

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
Santa Cruz County Community Assessment Project (CAP)	Santa Cruz County, Calif. Approx. 250,000	Indicators measure progress toward quality of life goals (e.g., economic, education, environment, health, public safety, social, and natural environment) for Santa Cruz County and raise awareness of changing trends and emerging issues as well as provide information to human services agencies and the organizations that fund them. CAP also supports action plans to achieve its goals.	(Public/Private) Managed through a collaboration of individuals and community groups, including the United Way of Santa Cruz and Dominican Hospital. Applied Survey Research, a not-for-profit consulting company, is responsible for the research component of the system.	Initiated in 1993. First set of indicators presented in 1995.	Reported annually.
Santa Monica Sustainable City	City of Santa Monica, Calif. Approx. 84,000	Indicators measure progress toward city goals and strategies for all sectors of the community aimed to conserve and enhance local resources, safeguard human health and the environment, maintain a healthy and diverse economy, and improve the livability and quality of life for all community members in Santa Monica. Goal and indicator categories are resource conservation, environmental and public health, transportation, economic development, economic diversity, open space and land use, housing, community education and civic participation, and human dignity.	(Public) City of Santa Monica's Environmental Programs Division, Public Works Department.	Initiated in 1994.	Reported every 2 years.
Sustainable Seattle	Seattle, Wash. Approx. 570,000	Indicators promote sustainable development at a local and regional scale to help solve fundamental development problems and foster long-term social change through policy advocacy, education, and civic action. Indicators are provided in the following topical areas: environment, population and resources, economy, youth and education, and health and community.	(Private) Sustainable Seattle—a not-for-profit organization.	Initiated in 1992. First report in 1993.	Most recent full report in 1998.
Index of Silicon Valley (California)	Silicon Valley region of Northern California Approx. 2,300,000	Indicators report on progress toward achieving goals primarily related to sustainable development and quality of life for California's Silicon Valley region (e.g., in the areas of environment, population and resources, economy, youth and education, and health and community). The project addresses issues raised from indicator results through collaborative action.	(Private) Joint Venture: Silicon Valley Network—an independent, not-for-profit organization with some public-private partnerships.	Initiated in 1992. First report in 1995.	Reported annually.

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
State of the Region (Southern California)	Local governments in southern California Approx. 17,123,000	Indictors track progress toward a regional comprehensive plan and goals for the southern California region (i.e., in the areas of population, the economy, housing, transportation, the environment, and quality of life). It also serves as a guide for local government planning in the region.	(Public/Private) Southern California Association of Governments.	Initiated in 1997. First report in 1998.	Reported annually.
Benchmarking Municipal and Neighborhood Services in Worcester	Worcester, Mass. Approx. 175,000	Indicators measure progress toward strategic goals in the areas of public safety, education, economic development, municipal and neighborhood services, and youth services. The effort informs city agency officials (for management of city services), as well as interested citizens.	(Private) Worcester Regional Research Bureau, a private, not-for-profit organization.	Initiated in 1998.	Reported annually.
Results Iowa	State of Iowa Approx. 2,944,000	Indicators are linked to statewide goals (i.e., the areas of new economy, education, health, safe communities, and environment) to provide Iowa state government officials' benchmark information for planning and budgeting.	(Public) Iowa Department of Management.	Project initiated around 1999.	Reported annually.
Maine's Measures of Growth	State of Maine Approx. 1,306,000	Indicators track progress toward a long-term economic growth policy for the state of Maine through quality of life measures on the economy (i.e., prosperity, business innovation, business climate, and skilled and educated workers); community (i.e., civic assets, disparities, and health and safety); and environment (i.e., preservation, access, and stewardship).	(Public/Private) Maine Economic Growth Council, an independent entity chartered by the state legislature.	Initiative began in 1993. First reported in 1996.	Reported annually.
Minnesota Milestones	State of Minnesota Approx. 5,059,000	Indicators track progress toward 19 quality of life goals for the state (e.g., Minnesotans will excel in basic and challenging academic skills and knowledge; have sustainable, strong economic growth; and improve the quality of the air, water, and earth). Also, provides accessible information to make planning and budget decisions.	(Public) Minnesota Department of Administration.	Project initiated in 1991. First reported on in 1993.	Reported every 2 or 3 years. Also periodically updates data on Web site.[a]

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
North Carolina 20/20	State of North Carolina Approx. 8,407,000	Indicators measure progress toward goals in multiple domains over a 20-year period to assess the strengths, needs, and challenges in North Carolina. Goals are linked to the economic competitiveness of the state and fall within the following categories: healthy children and families, safe and vibrant communities, quality education for all, a high-performance workforce, a sustainable environment, a prosperous economy, a 21st century infrastructure, and active citizenship and accountable government.	(Public) North Carolina Progress Board—reporting to the state university system's Board of Governors.	Initiated in 1995.	Reported every several years along with other interim reports.
Oregon Benchmarks	State of Oregon Approx. 3,560,000	Indicators measure progress toward a strategic vision for the State of Oregon and related goals. Indicators fall within the goal categories of (1) quality jobs for all Oregonians, (2) safe, caring, and engaged communities, and (3) healthy, sustainable surroundings.	(Public) Oregon Progress Board—a unit of state government reporting to a board comprised of the governor and other leaders inside and outside of government.	Initiated in 1989. First report in 1991.	Reported every 2 years.
Social Well-Being of Vermonters	State of Vermont Approx. 619,000	Indicators serve as benchmarks to measure outcomes to improve well-being of children, families, and individuals. Outcomes are grouped under (1) families, youth, and individuals are engaged in their community's decisions and activities; (2) pregnant women and young children thrive; (3) children are ready for school; (4) children succeed in school; (5)children live in stable, supported families; (6) youth choose healthy behaviors; (7) youth successfully transition to adulthood; (8) adults lead healthy and productive lives, and elders and people with disabilities live with dignity and independence in settings they prefer; and (9) communities provide safety and support to families and individuals.	(Public) Vermont Agency of Human Services.	Project initiated in 1993.	Reported annually.

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Name of system/report	Jurisdiction(s) and population	Description	Managing organization(s)	Date begun/first reported	Frequency of updates
German System of Social Indicators	Germany Approx. 83 million	Indicators monitor the state of and changes in living conditions and quality of life, covering 14 life domains (including the economic, environmental, and social and cultural domains). Includes almost 400 indicators and 3,000 time series.	(Public/Private) Center for Survey Research and Methodology (ZUMA), a government-funded research institution in Mannheim, Germany.	Development began in the 1970s. Data are available online from ZUMA.	Indicators continually maintained and updated. Biennial data report is published with the Federal Statistical Office of Germany.
United Kingdom Sustainable Development Indicators	United Kingdom Approx. 60 million	To measure progress toward the government's sustainable development strategy in the areas of social progress, economic growth, and environmental protection. Includes 15 headline indicators to give a broad overview and 132 core indicators to focus on specific issues and identify areas for action.	(Public) Department of Environment, Food, and Rural Affairs.	In 1999, the U.K. government published a strategy for sustainable development and included baselines for the indicators.	Starting in 2000 reports annually on the latest information on progress, including all the headline indicators. Major updates every 5 years.
European Structural Indicators	European Union Approx. 450 million	Indicators track progress toward strategic goals for the economic, social, and environmental renewal of Europe, which are detailed in the Lisbon Strategy. The indicator system covers the following topics: employment, innovation and research, economic reform, social cohesion, and the environment. Starting in 2004, the EU reports on 14 headline indicators, although the more detailed set of indicators will be maintained in a publicly available database.	(Public) European Commission.	Lisbon Strategy was adopted in 2000 (and modified in 2001); the structural indicators began in 2001.	Reported on annually to the European Council.

Source: GAO analysis.

Note: The World Wide Web links for these systems can be found at http://www.keyindicators.org.

[a]Since we concluded our interviews in the fall of 2003, Minnesota Milestones ceased to be an active system. State officials told us that the Minnesota Milestones Web site will be maintained but there are no plans to update the data in the near future.

Timeline and Evolution of the Boston Indicators Project

The Boston Indicators Project is coordinated by the Boston Foundation in partnership with the City of Boston, the Boston Redevelopment Authority, and the Metropolitan Area Planning Council. The goal of the project is to engage the general public, civic and community-based institutions, media, business, and government in better understanding Boston's key challenges and opportunities. The project aims to

- "democratize data" (by creating a container for local data, research, and reports);
- create a common ground for civic discourse and collaborative strategies;
- track progress on shared goals along the lines of civic health, cultural life and the arts, economy, education, environment, housing, public health, public safety, technology, and transportation; and
- disseminate results and best practices to a wide audience.

The project took years to develop and has evolved and expanded its focus in several distinct phases, although there is some overlap between them.

Participatory Development of the Indicator System (1997–99)

The Boston Foundation and the City of Boston launched the project in 1997, with additional support from the Urban Institute in Washington, D.C.[1] It was intended to engage the community in developing indicators of sustainability that would measure natural assets, economic well-being, and human development for the City of Boston and its neighborhoods. The project developed an open, participatory approach involving a wide range of practitioners, academics, policymakers, and other private and not-for-profit sector leaders. It attempted to take advantage of lessons learned from past efforts in the United States, and adopt successful practices used by others who had implemented comprehensive key indicator systems.

An initial planning meeting took place in January 1997, involving about 12 individuals from various community organizations, in addition to officials

[1] The specific programs at each of these organizations that helped establish the Boston Indicators Project included the Community Building Network at the Boston Foundation, the Sustainable Boston Initiative of the City of Boston, and the Urban Institute's National Neighborhood Indicators Partnership.

from the city's planning and development offices. Planning focused on the need for a clear vision for the project, as well as some of the limitations of indicators that had traditionally been used to measure change in urban communities. Individuals from additional groups and agencies were invited to subsequent meetings so that by late spring 1997, the group had grown to include about 75 participants who had developed a broad framework for the project, including a vision, goals, and a process for developing indicator categories.

The next step involved identifying indicator categories as well as the indicators themselves. This involved about 150 individuals working in both large and small group settings and the process took about 6 months. As the effort evolved, participants formed a steering group and various subcommittees, developed criteria for selecting indicators, began to identify data sources, and continued to consult widely with similar projects to try to learn from their experiences. Project participants decided that indicators should ideally be expressed in positive or asset-based terms (such as the number of third graders who can read at grade level or the percentage of healthy babies born). Accordingly, the Project attempted to identify strengths and focus on desired positive outcomes, rather than focusing on deficit or negative terms (such as the school dropout rate or the percentage of low birth weight babies).

By early 1998, participants in the project had identified over 150 proposed indicators. They began to try to reduce the number of proposed indicators and identify and collect data, which was difficult and time-consuming. Over 300 individuals from diverse sectors, neighborhoods, levels of government, and racial and ethnic groups participated in working sessions to conceptualize and develop the indicator system. Even more individuals and organizations assisted with data collection and analysis, and the initial phase was largely finished by the fall of 1998.

Initial Reporting on the Indicators (1999–2002)

In June 1999, a draft report on the indicators was released at a Boston Citizen Seminar hosted by Boston College. The mayor of Boston gave the keynote address at this event, and approximately 250 people attended. The seminar included a panel of civic leaders and a presentation on the indicators, and small group discussions. Subsequently, more than 700 copies of the draft report were distributed to senior government officials, state legislators, and interested organizations and individuals for review, and their comments were incorporated.

The Boston Foundation and other organizations[2] worked with the Center for Survey Research at the University of Massachusetts in Boston to design and fund an annual survey to produce qualitative data for some measures for which data had not been consistently available. They conducted the first survey in the summer of 2000 in the metropolitan region, the city, and four Boston neighborhoods. The project released the final indicators report, *The Wisdom of Our Choices: Boston's Indicators of Progress, Change and Sustainability 2000*, in the fall of 2000 at another Boston Citizen Seminar that about 350 people attended. The project distributed 7,500 copies of the report.[3]

Pursuing Two Tracks: Reporting on Indicators and Working toward a Civic Agenda (2002 through the Present)

In recent years, the Boston Indicators Project has begun to follow two distinct tracks. One track has continued to produce the indicators reports every 2 years to measure progress toward a vision for 2030.[4] This track has involved maintaining and improving the project's Web site (http://www.bostonindicators.org); improving data and creating tools for accessing data; developing an educational curriculum and a seminar series; and conducting briefings for media professionals. The other main track involves developing a civic agenda for Boston. This second track has begun efforts to reach consensus on a Boston civic agenda. The agenda is to consist of short-term, achievable outcomes that are linked to high-level, long-term goals. These efforts are also intended to build support from stakeholders by incorporating various organizations' goals and encouraging organizations to align their own resources and activities with the shared civic agenda.

Under the first track, the project released an updated indicators report, entitled *Creativity and Innovation: A Bridge to the Future* in February 2003.[5] Like the first report, it was released at a Boston Citizen Seminar hosted by Boston College and attended by hundreds of civic leaders. The highly interactive Web site for the Project was also launched at this time.

[2] The other groups included the Boston Redevelopment Authority, Action for Boston Community Development, the United Way of Massachusetts Bay, the Harvard School of Public Health, and the Metropolitan Area Planning Council.

[3] The Boston Foundation, *The Wisdom of Our Choices: Boston's Indicators of Progress, Change and Sustainability 2000* (Boston: 2000).

[4] Boston's 400th anniversary will be in the year 2030.

[5] Boston Foundation, *Creativity and Innovation: A Bridge to the Future* (Boston: 2002).

The structure of the Web site allows users to search for information by goal categories, or by one of five crosscutting filters. These filters include Boston neighborhoods, children and youth, competitive edge, race/ethnicity, and sustainable development. They allow users to pull relevant information from different areas of the Web site, identify connections across sectors, and show local conditions in a citywide, regional, and global context.

The concept for a civic agenda was developed as part of the work of a leadership group established by the Boston Indicators Project. This group—composed of individuals (many in leadership positions) from diverse organizations and sectors, including academia, nonprofit organizations, foundations, the Boston public school system, and businesses—meets periodically to discuss issues such as dissemination strategies for the indicators report, and whether and how the project could contribute to connecting leaders in Boston and shaping the public dialogue on important issues. Members had agreed that once the indicators were in place, the group's next step would be to try to leverage change by strengthening civic leadership. The group formed a subcommittee to develop recommendations, criteria, and a strategy for developing a civic agenda to be released as part of the 2004 indicators report. The group intends to articulate a set of long-term goals based on a preferred future scenario, and then create specific strategies, or pathways of change, to reach these long-term goals. The project also plans to use measurable benchmarks in tracking and reporting on progress toward the short-term aspects of the civic agenda.

Key Themes from the Boston Experience

The project's over 7 years of experience demonstrate the importance and value of engaging collaborative and highly participatory processes in developing an indicator system and revising it as circumstances change or new indicators become available. It also provides an illustration of the extent to which an indicator system can expand its focus over time and shows the value of learning from others and sharing information on successful practices and technologies.

- **Collaborative and participatory processes are important.** The Boston experience illustrates that involving a diverse and large group of public and private leaders and citizens can pay off in terms of widespread buy-in and use. From the outset, the project involved widely consultative and participatory processes for developing concepts and making decisions, including public and private leaders. A large

number of individuals from diverse sectors, neighborhoods, levels of government and racial and ethnic groups participated in working sessions to conceptualize the first draft indicators report. The final versions of the 2000 indicators report, as well as the 2002 report, were released at public events attended by diverse audiences, and the draft version of the 2000 report was distributed to 700 different individuals and organizations for comment. The project's leadership group includes leaders from many diverse sectors.

- **A system's focus can expand over time.** The Boston experience also shows that, with sufficient support and buy-in, an indicator system can expand its focus and become an agent for change. According to project officials, a major motivation for the first indicators report in 2000 was to provide access to objective data. Project staff explained that the first report was immense and contained a huge amount of data. They said they received feedback that it was too much for potential users to "get their arms around," and that the data and report needed to be interpreted and synthesized more so they would be more understandable. Following the release of the 2000 report, the project began a new phase with two tracks, one to implement a different approach with the 2002 report, although it did not abandon its original focus on reporting on and widely disseminating indicators. The second report contained more interpretation of data, comparisons, and identification of important trends. While greater interpretation of data may be more useful to potential users, it may also lead to more friction among leaders. The civic agenda was based on the idea of analyzing indicators to develop specific strategies for achieving selected goals. Observers we spoke with noted that selecting and reaching consensus on strategies involves more subjectivity and may be harder to accomplish than just reporting objective information. The implications of moving toward greater interpretation of data and strategy development are not likely to fully unfold for some time, as the Project is dynamic and still evolving. Change can also be noted in terms of the specific indicators used over time. For example, of the 16 specific indicators of civic health included in the 2000 report, about half of them were no longer included among the 23 indicators shown on the project's Web site in June 2004.

- **Learning from others and sharing information.** The project illustrates the value of learning from the experiences of others when developing a system, and once the system has been developed, sharing successful practices and technology with others. In recent years, the

project has made it a priority to share information and lessons learned with groups from other cities that are interested in using the Boston indicator system as a model. Project officials believe this will facilitate easier replication elsewhere in the United States. For example, a new comprehensive key indicator system in Dallas, Texas (Dallas Indicators) has borrowed heavily from the experiences of the Boston Indicators Project. In addition, project staff have made the Web site architecture available for licensing, and have received queries from several interested organizations.

Timeline and Evolution of the Oregon Benchmarks

The State of Oregon's comprehensive indicator system, known as the Oregon Benchmarks, had its roots in a strategic planning exercise that was launched in response to a serious economic downturn in the early to mid-1980s. This system has evolved over time in several phases, which are described in detail below, although there is some overlap between them. The Oregon Benchmarks system started as a way to monitor and encourage statewide progress toward a set of policy goals and targets—and explicitly aimed to be a system for all of Oregon, not just the state government. In recent years, the system has narrowed its focus somewhat and become an integral part of the state government's performance measurement and improvement process.

Oregon Shines Strategic Planning Initiative (1988–89)

In 1988, Governor Neil Goldschmidt launched a statewide economic planning initiative, based on a vision of Oregon as a diverse economy built on a foundation of an educated workforce and a high quality of life. Sixteen committees made up of approximately 180 leaders from the business, labor, education, and government communities were involved in drafting reports that the governor's office and the Economic Development Department used to shape the comprehensive strategic plan. The resulting document, *Oregon Shines: An Economic Strategy for the Pacific Century*, was issued in May 1989 (commonly known as Oregon Shines), and laid out an economic strategy for the next two decades. The strategy was based upon the concept of a "circle of prosperity," which held that quality communities and a prosperous private sector reinforce one another, and could be strengthened by pursuing several initiatives: a well-educated, skilled workforce; an attractive quality of life achieved through maintaining the natural environment; and an internationally-oriented business and cultural climate attractive to global commerce.

Establishing the Oregon Progress Board and Oregon Benchmarks (1989–91)

The Oregon Benchmarks system was developed as a complement to Oregon Shines, as a tool for following up on the long-range strategy and assessing progress made toward achieving its broad goals. In the summer of 1989, the legislature approved the creation of the Oregon Progress Board as a statutory agency located within the governor's office. The governor was chair of the Progress Board and appointed all of its nine volunteer members, who were to translate the strategic vision of Oregon Shines into a set of measurable indicators. Specifically, the Progress Board was supposed to develop a set of benchmarks for legislative approval in 1991, and then report on progress toward the benchmarks every 2 years. Benchmarks were intended to be broad indicators of the overall economic,

social, and environmental health of the state as a whole and not simply performance measures for state agencies. Achieving the benchmarks would be beyond the reach of state and local governments alone, and would require the combined efforts of citizens, businesses, advocacy groups, charitable organizations, and academic researchers. While the Oregon Progress Board was intended to be bipartisan, the governor and the majority of members of both houses of the state legislature were Democrats when it was established.

A variety of citizen groups participated throughout 1990 in identifying the Oregon Benchmarks, and the Progress Board met monthly to oversee the process. The Oregon Shines strategy was divided into six topics, with teams of citizens assigned to develop and identify preliminary indicators. The preliminary recommendations were then presented to the public in statewide meetings attended by about 500 citizens, and another 200 organizations and individuals contributed written comments. Based on that input, the Progress Board developed a master list of 158 benchmarks. Where possible, for each benchmark, historical data were presented for 1970 and 1980; baseline data were presented for 1990; and future short- and long-term goal or target levels were set for 1995, 2000, and 2010. In general, the long-term goal levels were ambitious, based on aspirations for society, and not necessarily realistic. Examples of ambitious target levels for 2010 included that there should be no children living below the federal poverty line, there should be no pregnant women using illicit drugs, and 97 percent of teenagers should graduate from high school (up from 87 percent in 1990). Early in 1991, the Progress Board sent the set of 158 benchmarks to 18 legislative committees, which recommended some amendments. The state legislature unanimously adopted the Oregon Benchmarks in 1991.

Beginning to Link Government Programs to the Benchmarks (1991-93)

After the 1990 elections, a number of developments related to the state political environment and the budget began to affect the Oregon Progress Board and the use of the benchmarks. Republicans gained control of the state House of Represfor the first time in 20 years, although Democrats still controlled the Senate and the governorship. In 1990, Oregon voters also approved a property tax cap (known as Measure 5), which also required that state funds replace any resulting lost revenues for local school districts. As a result, it was anticipated that more state funds would need to be allocated for education, which would make it necessary to reduce noneducation spending. The new governor, Barbara Roberts, was a strong supporter of the Progress Board. In anticipation of the need to make budget reductions, she tried to use the benchmarks as a tool to help set

priorities during the 1993 budget preparation process. Basically, state agencies had to submit base budgets at only 80 percent of the level of the prior year, but could receive higher percentages if they could show that their programs contributed to lead benchmarks. The Progress Board estimated that the policy resulted in a shift in the budget distribution worth an estimated $130 million toward programs aimed at the lead benchmarks. The Oregon Benchmarks became more important to state government agencies, although since the benchmarks had not been developed to reflect agency programs or structures, there was not always a good fit between services provided by the agencies and the benchmarks. One result of this disconnect between agency programs and the benchmarks was upward pressure on the number of benchmarks, as agencies and special interest groups pressed the Progress Board to add benchmarks to reflect their specific areas of work. By 1993, the number of benchmarks had increased from 158 to 272. The Progress Board, in conjunction with the Oregon Business Council, sponsored 29 community meetings across the state that engaged about 2,000 citizens in reviewing the strategic vision and benchmarks. The state legislature approved the Oregon Benchmarks again in 1993, although not unanimously this time.

Oregon Progress Board and Benchmarks Affected by Politics (1994–95)

In the 1994 elections, Republicans gained control of both chambers of Oregon's legislature, a development that eventually had serious implications for the future of the Progress Board and Oregon Benchmarks. The statute that had established the Oregon Progress Board required that the state legislature vote to reauthorize it in 1995, or it would automatically "sunset." John Kitzhaber, the new Governor who took office in 1995, supported the Oregon Progress Board and Oregon Benchmarks system. The Oregon Benchmarks also influenced several local governments, for example, the Portland Multnomah County Benchmarks, and a few private statewide agencies within Oregon, as well as the states of Minnesota and Florida, in developing their own benchmark initiatives, and won recognition from a number of prestigious organizations.[1] However, some legislators, particularly Republicans, perceived that state agencies were trying to use the ambitious target levels set for the Benchmarks to argue for increased funding for their programs. Some felt that the Oregon

[1] In 1994 the Oregon Benchmarks was one of the winners of an Innovations in Government contest sponsored by Harvard University's Kennedy School of Government and the Ford Foundation. The Oregon Benchmarks also received positive notice from the National Governor's Association and the federal government's National Performance Review.

Benchmarks represented a partisan and ideological agenda. Overall, the legislature was evidently not persuaded of the value of the Oregon Benchmarks system, because in 1995, a Republican caucus did not approve the bill to reauthorize the Progress Board. However, a 2-year budget for the Progress Board had already been approved by the legislature, and Governor Kitzhaber decided to keep it alive via an executive order. This effectively meant that the Oregon Progress Board received a 2-year reprieve during which it could try to regain the support of the legislature for reauthorization.

New Directions (1995–2001)

In 1995, the Oregon Progress Board received a new executive director who oversaw a process of working to address concerns expressed by legislative critics and trying to win more support by making some changes to the Oregon Benchmarks and the Progress Board. Also in 1996, the Governor instructed state agencies to identify benchmark linkages in their budgets and describe how proposed programs would contribute to achieving benchmark targets. The Progress Board's director advocated updating the Oregon Shines strategy, based on the argument that Oregon's economic situation had substantially improved and new issues had become relevant since the original strategy was issued in 1989. To update the strategy, the governor established a 45-member task force consisting of past and present Progress Board members, a Republican senator, a Democratic representative, local politicians, independent citizen leaders, and individuals from universities and nonprofit organizations. In 1997, *Oregon Shines II: Updating Oregon's Strategic Plan* was released. Emphasis was also placed on increasing support from state legislators. As part of this process, the indicators were revisited and the total number was reduced to 92, and target levels were made more realistic. Around the same time, the Oregon Progress Board released the first report card on progress toward achieving the benchmarks. The Progress Board staff succeeded in winning support for the Oregon Benchmarks system from several Republican legislators, and met individually with all of the state senators and other key leaders. These efforts paid off when, in the spring of 1997, the state legislature permanently reauthorized the Oregon Progress Board.

With the newly reauthorized Progress Board came a new emphasis on using the Oregon Benchmarks system as an accountability tool, although the Board does not want to lose its value as a visioning tool. According to some observers, the work of the Progress Board was moving toward performance measurement of state agency programs in order to maintain the support of key legislators. In March 1999, the Progress Board

presented a benchmark report to the legislature, which assessed progress toward achievement of each benchmark with a letter grade. Efforts were made to align the activities of state agencies with the benchmarks. In 2001, legislation moved the Progress Board to the Department of Administrative Services (the central administrative agency of state government, responsible for budget development) and added a significant focus on helping state agencies link their performance measures to Oregon Benchmarks. The bill also mandated that the Progress Board write guidelines on performance measures for state agencies, and added one legislator from each chamber of the legislature as a voting member of the Progress Board. The Progress Board issued a report showing to which benchmarks particular state agencies were contributing.

Recent Developments (2002 through the Present)

In a special legislative session in the fall of 2002, the Oregon Progress Board lost all its funding when state government spending was drastically cut to deal with an ongoing state fiscal downturn. The current governor, Theodore Kulongoski, managed to set aside some funds to keep the Progress Board going through the end of the 2001-2003 budget period. As of the fall of 2003, the statute authorizing the Oregon Progress Board was still in effect, and there was authority for three staffing slots and modest funding for 2 years. According to the director, the Progress Board has only managed to survive because it is so involved in doing performance measurement work that the legislature considers important. Another observer said it was very difficult to keep the board "alive" during the last legislative session, because there is not that much interest in it. The Oregon Benchmarks system continues to evolve in the direction of serving as a performance measurement tool for state government. Many leaders we interviewed believe that this new focus might make the Oregon Benchmarks more relevant and useful. Recently, the Progress Board assisted the state's Department of Administrative Services and the governor's budget office in reviewing the programs of all 87 state agencies and assessing how the goals and performance measures in their strategic plans link to the Oregon Benchmarks. The Progress Board also helped state agencies to develop performance measures as part of their budget requests. In the future, agencies will be required to explain how their programs tie to benchmarks in their annual performance measure reports.

Key Themes from the Oregon Experience

The nearly 15 years of the Oregon Benchmarks experience highlight several themes, including the importance of having bipartisan and broad-based support, the extent to which a system can evolve from its original purpose,

and the advantages and disadvantages of being a completely government-led and funded system.

- **Bipartisan and broad-based support is important.** The Oregon experience suggests that support for an indicator system could be vulnerable if it is perceived as being the creation of a particular political party, a particular leader, or a single branch of government. When the Oregon Progress Board was first created, the governor and majorities in both chambers of the state legislature were from the same political party. The Progress Board and the Oregon Benchmarks system continued to enjoy support from the next three governors in succession, who also belonged to the same party. It was clearly perceived as driven by the executive branch and the governors' political party. Support for the indicator system from the legislature decreased after the opposing political party gained the majority in the legislature. The Progress Board and the Oregon Benchmarks have come close to being eliminated twice, due at least in part to perceptions of political partisanship. Recently, attempts have been made to broaden support across party lines and increase collaboration with the legislature.

- **Indicator systems evolve over time.** The Oregon experience also illustrates that an indicator system can change significantly over time as its organizers and supporters respond to changes in political or economic circumstances. Today, the Oregon Progress Board continues its work, monitoring and reporting on benchmark indicators that track progress toward future targets. In the 15 years since the state legislature first established the Oregon Progress Board (13 years since it approved the first set of Oregon Benchmarks), the system has evolved from a participatory visioning process intended to develop an economic strategy and broad goals for the kind of society Oregonians aspired to have, to its present emphasis on performance measurement and linking the programs of state agencies to achieving the benchmarks. To increase its relevance and usefulness to state executive and legislative branch officials, the Oregon comprehensive indicator system has evolved toward a greater emphasis on serving as a tool for state government agency performance measurement.

- **Public sector status has advantages and disadvantages.** The Oregon Progress Board and the Oregon Benchmark system have been funded by and housed within the state government—specifically the executive branch—from the beginning. The Oregon experience demonstrates that being led and financed by the government can have

advantages and disadvantages. Having the support of a high-level public official, such as the governor, can lead to a great deal of exposure and initial use for an indicator system. However, such support can also make a system vulnerable once that leader leaves office or government fiscal priorities change. Several different governors championed the Oregon Benchmark system, which helped secure funding and resources for the program. A downside of the patronage from the governors, however, has been the issue of perceptions of political partisanship, as described above. In addition, reliance on state funding made the Progress Board vulnerable to elimination during a severe fiscal downturn, which has been the case since 2001. Since 2001, the state, which has one of the highest unemployment rates in the country, has been forced to make large budget cuts, placing programs that are perceived to be nonessential, like the Oregon Benchmarks, in jeopardy.

The Role of Indicators in the European Union

Over the past 50 years, efforts to create an integrated European Union (EU) have expanded from an agreement among six countries to form a coal and steel common market to a union of 25 countries with a wide array of common policies and institutions. Indicators and related systems have played an important role in helping to monitor the position and progress of member countries and to assess Europe in relation to other democracies throughout the world, including the United States. The EU has numerous well-developed and accepted indicator systems specific to topical areas and domains, as well as those that recognize the relationships among economic, social and cultural, and environmental indicators. The European Structural Indicators system, which is linked to the Lisbon Strategy, is widely accepted as the largest scale, most comprehensive indicator effort at the EU level.

Background on the EU

The EU is a treaty-based, institutional framework that facilitates economic and political cooperation among its current 25 member states—Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.[1] The EU is the latest stage in a gradual process of European integration that began after World War II to promote peace and economic prosperity in Europe. Its founders hoped that by creating communities of shared sovereignty—initially in areas of coal and steel production, trade, and nuclear energy,—another war in Europe would be prevented. In the last decade, EU member states have taken significant steps toward political integration as well, with decisions to develop a common foreign policy and closer police and judicial cooperation. EU members work together through common institutions. The EU has been built through a series of binding treaties.

[1] Ten of the 25 current member states (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia) joined the EU on May 1, 2004. Two other states, Bulgaria and Romania, hope to complete accession negotiations and be able to join the EU by 2007. Accession negotiations establish the terms under which applicants will meet and enforce EU rules and regulations in a host of areas ranging from agriculture to competition to trade. Turkey was formally recognized as a EU candidate in 1999, but remains in a separate category as it seeks to comply fully with the EU's political and economic criteria for membership. No firm date has been set for beginning accession talks with Turkey. Croatia and Macedonia have also applied for EU membership.

The institutions of the EU are divided into three "pillars" and decision-making processes differ in each. Pillar one is the European Community, which encompasses economic, trade, and social policies ranging from agriculture to education. In pillar one areas—by far the most developed and far-reaching—members have largely pooled their national sovereignty and work together in EU institutions to set policy and promote their collective interests. Decisions in pillar one often have a supranational character and most are made by a majority voting system. Pillar two aims to establish a common foreign and security policy to permit joint action in foreign and security affairs. Pillar three seeks to create a justice and home affairs policy to foster common internal security measures and closer police and judicial coordination. Under pillars two and three, members have agreed to cooperate but decision making is intergovernmental and by consensus. Thus, members retain more discretion and the right to veto certain measures.

The EU is governed by several institutions. They do not correspond exactly to the traditional division of powers in democratic governments. Rather, they embody the EU's dual supranational and intergovernmental character.

The ***European Council*** brings together the heads of state or government of the member states and the Commission President at least twice a year. It acts principally as a strategic guide and driving force for EU policy.

The ***Council of the European Union (Council of Ministers)*** consists of ministers from the national governments. As the main decision-making body, the council enacts legislation based on proposals put forward by the European Commission (described below). Different ministers participate depending on the subject under consideration (e.g., finance ministers could convene to discuss budgetary policy). Most decisions are made by majority vote, but some areas, such as taxation, require unanimity. The presidency of the council rotates among the member states every six months.

The ***European Commission (EC)*** is essentially the EU's executive apparatus and has the sole right of legislative initiative. It upholds the interests of the Union as a whole and ensures that the provisions of the EU treaties are carried out properly. The 25 commissioners are appointed by the member states for 5-year terms. Each commissioner holds a distinct portfolio, for example, agriculture. The EC represents the EU internationally and negotiates with other countries primarily in areas falling under pillar one. However, the EC is primarily an administrative entity that serves the Council of Ministers.

The ***European Parliament*** consisted of 732 members as of June 2004. They are directly elected in each member state for 5-year terms under a system of proportional representation based on population. The Parliament cannot initiate legislation like national parliaments, but it shares "co-decision" power with the Council of Ministers in a number of areas and can amend or reject the EU's budget.

The ***Court of Justice*** interprets EU law and its rulings are binding. A ***Court of Auditors*** monitors the EU's financial management. A number of other ***advisory bodies*** represent economic, social, and regional interests.

The ***European Central Bank (ECB)*** was established in 1998, under the Treaty on European Union, to introduce and manage the new common European currency shared by 12 of the member countries (the euro). The ECB is also responsible for framing and implementing the EU's economic and monetary policy.

Evolution of Indicators in the European Union

From the beginning, the European Union and its governing institutions have used indicators as the basis for monitoring conditions, tracking progress, and making decisions. As the EU has expanded into new areas, indicators have played an increasingly important role. Many of the policy agreements among member countries are accompanied by agreements to develop indicators to measure progress toward achieving the goals and objectives to which members have agreed. Because of the limited powers of the EU compared to those of the sovereign member countries, and because of the great diversity among the member countries, the EU has promoted evidence-based decision making and the use of high-quality, impartial, and comparable information as a way of enhancing the prospects for making progress toward EU-wide goals and objectives. Closely monitoring levels of progress and encouraging action toward these goals and objectives are important functions of the EC because in most cases it is up to individual, sovereign countries to determine how and to what extent to pursue them.

Economic indicators serve as the basis for a number of key decisions within the EU. In fact, use of some indicators is written into important treaties. In one specific example, the Maastricht Treaty laid out criteria to determine when countries are ready to adopt the euro—the single European currency that 12 members currently use. Among other things, the treaty specifies that the annual government deficit of the country, defined as the ratio of the annual deficit to gross domestic product, must

not exceed 3 percent at the end of the preceding financial year. The treaty also stipulates that the country must achieve a high degree of price stability. To monitor these treaty-driven criteria, the EU uses sets of key indicators. For example, the European Central Bank has worked with the EC to develop a harmonized index of consumer prices, a key indicator for monetary policy and the monitoring of inflation. The EU has also developed a set of euro-indicators to measure economic development in member countries.

Eurostat, which is a component of the EC, is the statistical agency of the EU. Eurostat does not collect much data on its own—instead it relies on data collected by member countries. Accordingly, Eurostat works with the national statistical offices of the member countries to obtain the required information. Eurostat has worked with member countries to harmonize indicator data, improve the quality of indicators, expand coverage for acceding countries, conduct methodological work on new indicators, maintain databases, and provide technical assistance in the development and use of indicators. Because of the great diversity of the member countries in a wide variety of areas, including the maturity of their statistical systems, the task of obtaining high-quality, comparable, and harmonized data for indicator systems has been a major challenge.

The increasing demands for indicators and data and, in particular, their increasing use for monitoring EU policies,called for a more formalized structure for European statistics. In 1997, the EU agreed to include an article on statistics in the Treaty of Amsterdam. It supplements the Statistical Law of 1997, which provides the legal framework for EC statistics and sets out the division of tasks between the national statistical institutes and Eurostat. The Statistical Law publicly and legally established basic principles for compiling and disseminating statistics, in particular those of impartiality and independence; and it guarantees confidentiality.

Development and Implementation of the European Structural Indicators

The development of the comprehensive European Structural Indicators system was a major milestone in the evolution of indicators at the EU level. It was at a meeting of the European Council in Lisbon, Portugal in 2000 that the EU established a strategic goal for the next decade: " …becoming the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion." Moreover, the member countries agreed to a series of more specific objectives and targets. Their agreements are laid out in the Lisbon Strategy. For example, one objective was to raise the

employment rate to 70 percent by 2010 and increase the number of women in employment to more than 60 percent by 2010. Another less quantitative goal was the creation of an information society for all businesses and citizens.

The European Council also acknowledged the need for regular discussion and assessment of the progress made in achieving the Lisbon Strategy's goal and related objectives on the basis of commonly agreed to European Structural Indicators. To this end, it invited the EC to draw up an annual synthesis report on progress on the basis of indicators relating to employment, innovation, economic reform, and social cohesion. The Lisbon Strategy acknowledged the links between the economic and social arenas and the necessity for more comprehensive indicators to measure progress. In the following year, the Gothenburg European Council added the domain of the environment to the areas already covered by the Lisbon Strategy and the European Structural Indicators, thereby making it a comprehensive strategy cutting across the economic, environmental, and social and cultural domains.

In the months that followed, the EC and the Council implemented a structured process for defining, creating, and using the European Structural Indicators needed for this policy process. The evolving process has proved to be an important vehicle for achieving consensus within the EC directorates and among member countries. To identify the indicators and develop an indicator system, the EC convened a series of meetings through which it established processes that continue to be used to this day. Specifically, it established a committee consisting of officials from all relevant EC directorates (e.g., research, education and culture, environment, and employment and social affairs) whose purpose is to discuss which indicators to include and develop a draft slate of indicators. The economic and financial affairs directorate coordinates the European Structural Indicators selection process. Eurostat participates in this committee primarily as a technical advisor. For example, Eurostat staff advises on what indicators or data exist and their levels of quality and reliability. In some cases, indicators already exist while in others they do not. For example, identifying indicators of employment to include in the European Structural Indicators was relatively easy because a well-developed employment indicator system already existed. In contrast, identifying appropriate indicators in the area of science and technology has been more challenging. The EU attempts to reach consensus regarding indicator selection by applying certain criteria and balancing the number of indicators among the various policy goals. As a part of its work to identify

appropriate indicators, the EU has adopted a set of criteria for selection of the European Structural Indicators. Indicators that are part of the system should be mutually consistent; policy relevant, or linked to policy goals already established; easy to understand by the target audience; available in a timely fashion; available for all or nearly all member states, acceding states, and candidate states; comparable among these states as well as to external parties, such as the United States; selected from reliable, official sources; and does not impose undue data collection burdens on members.

Once the committee has achieved consensus, the EC forwards a proposal to the Council of Ministers, which consists of officials from member countries. The Council of Ministers discusses the proposed indicators and works with the EC to agree on a final list. Once agreement on the list of indicators has been ratified by the Council, a separate EC committee, led by Eurostat, works to obtain indicators or data to compute the desired indicators. Each year, the EC issues a spring report to the Council that discusses the results of the indicators.

The list of key indicators has been reassessed every year, taking into account political priorities as well as progress with regard to development of indicators. The initial list of European Structural Indicators adopted in 2000 for the 2001 spring report contained 35 indicators. For the 2002 report, the list grew to 42 indicators with 107 subindicators. In the 2003 report, the list of indicators remained the same, but the coverage was extended to include the 10 candidate countries to the extent indicators were available. Concerned about the growing list of proposed indicators, the EC agreed in 2003 to designate 14 indicators as headline indicators for the 2004 report, allowing leaders to focus on the most important measures of progress in the Lisbon Strategy. Further, they decided to revise the selection of key indicators every 3 years rather than annually, making it easier to assess levels of progress over time. The EC continues to collect and maintain the larger database of indicators. While the discussion on progress made towards the Lisbon objectives in the annual spring report focuses on the headline indicators, reference is made to indicators in the database when appropriate.

Participants from both the EC and member countries agree that the process of collaboration is working well. In fact, the processes and practices established for the European Structural Indicators system, such as the selection criteria, are increasingly being utilized as a model for other EU indicator systems.

Key Themes from the EU Experience

Several themes emerge from studying the experience of the EU and its governing institutions in developing and implementing indicator systems, particularly the European Structural Indicators. This system was started for a specific purpose, had a defined target audience in mind, and was designed accordingly. The EU's experience demonstrates the usefulness of having transparent, repeatable processes in place for coordinating the work of all participants in the selection and revision of the indicator set and in the analysis and reporting of results. In addition, the European Structural Indicators system is increasingly being used as a best practices model for the rest of the EU's new and existing indicator systems.

- **Identifying specific purposes and target audiences is important.** The European Structural Indicators system—and nearly all key topical area or domain-specific indicator systems— are linked to goals and objectives that have been ratified in various treaties or otherwise agreed to by member countries. EU officials told us their key indicators generally serve to assess progress in meeting these Union-wide goals and objectives and then to encourage lower-performing countries to take action to better meet them. The EC can issue country-specific recommendations and does so regularly if, based on a review of the key indicators, it finds a particular country is not making sufficient progress. Merely publishing the comparative figures on performance of EU member countries helps influence leaders to improve performance. Accordingly, indicators have become an effective policy and political tool for the EU, and in recent years the use of indicators and the demand for data has increased. Moreover, the targeted audience of EU indicator systems, including the European Structural Indicators, is fairly narrow. EU officials readily acknowledge that the targets of their key indicator systems are primarily policymakers in the EU and member countries—not necessarily the public, advocacy groups, or researchers. For this targeted audience, indicators have increased in importance. However, other possible user groups may access the information, as it is publicly disseminated on the Eurostat Web site (http://europa.eu.int/comm/eurostat/).

- **Structured and transparent processes are also important.** Ensuring coordination among diverse stakeholders in selecting indicators and assessing progress has been essential to the development of the European Structural Indicators and other EU indicator systems as well. This structured and transparent process of collaboration provides for regular participation of representatives of the EU and member countries, and the EC and the Council, including political decision

makers and policy and technical experts. To make this all work, EU and country officials stressed that the selection of indicators and the selection of data to feed into those indicators should be well-coordinated processes, with indicator decisions left up to elected and appointed officials while data selection, collection, and coordination is left up to the appropriate experts. In addition, it is important for the coordinating mechanism (in this case, the EC directorates) to have highly dedicated, intelligent, experienced and collaborative staff with substantive knowledge of the subject areas and training in relevant disciplines (e.g., statistics, economics, or law). The initiatives to develop selection criteria, harmonize data from vastly different countries with different statistical systems, and improve the quality of available data require a significant investment of time and effort initially, but become easier over time. The view from selected member countries we interviewed is that these processes work well.

- **It serves as a best practices model to assist other efforts.** The EU is also using the European Structural Indicators to better coordinate other indicators efforts, and is trying to make practices designed for this system serve as a framework for other efforts to develop indicators of progress. Specifically, EU officials are expanding their efforts to establish common definitions, data collection standards, quality standards, and criteria for selecting indicators—as they have done in the development of the European Structural Indicators. In fact, if any directorate is proposing to establish new indicators in its particular policy domain, it must now submit the indicators for comment among other EC directorates. According to EC officials, the European Structural Indicators system is an effective model because it is viewed as an objective, trustworthy measure of progress. The professional work of the EC and member countries has led to significant progress in comparing heterogeneous jurisdictions, harmonizing the indicators to ensure comparability and quality, moving from a national to a European level, dealing with different levels of resources and maturity of statistical systems, and balancing national priorities among the member countries.

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For more background information and materials on indicator systems, see http://www.gao.gov/npi/. These materials were assembled in advance of the February 27, 2003 forum on Key National Performance Indicators in order to both provide background on the subject of national indicators, and to provide support for post-Forum efforts.

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