Geographic Information Systems: The Value Added in Federal Government

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Introduction

ESRI leads the industry in providing general-purpose commercial off-the-shelf (COTS) geographic information system (GIS) software applications and toolkits. ESRI has the largest customer base in the geoprocessing industry. ESRI® software is not special-purpose COTS, COTS used only in specific markets, or COTS made specifically for a single customer. Instead, our software is the basis for thousands of systems used in mission-critical applications around the world every day. ESRI software immediately satisfies the largest number and broadest range of requirements with a single open and interoperable product line under a single architecture.

The use of COTS is not simply a technical or cost issue; it has total system life cycle implications. A major added value of ESRI software is compliance with more requirements than any other commercial GIS software. The use of ESRI software reduces programmatic, technical, schedule, and cost risk. Reduced risk means immediate increased value when compared to any alternative commercial or government-owned software.

Software Evaluation Factors

A "best value" determination includes both cost and noncost factors when an agency assesses the near- and long-term benefits that it will realize in selecting a particular software solution. An organization may weigh past performance and technical expertise against cost considerations to determine the most beneficial solution. It may be in the best interest of the organization to consider factors other than the lowest price. Important noncost factors for any customer include the following:

- Compliance with technical requirements
- Robust software functionality
- Demonstrated commitment to industry standards
- Market presence and stability
- Domain knowledge and experience

Technical and Market Leader

The technical, business, corporate infrastructure, and corporate culture elements required for best value in COTS come only from the technical excellence, proven track record, and economies of scale of a market leader. ESRI is the technical and market leader in GIS software.

ESRI is the largest and most experienced commercial GIS software organization in the world. ESRI brings experience, state-of-the-art technology, and a history of success in working with literally thousands of private enterprises; federal, state, and local governments; and utility GIS users around the world.

ESRI offers a stable and mature product line, providing software that is already used extensively for all GIS applications. Specific industries include facilities management, environmental protection and safety, healthcare and human services, telecommunications, and local government. This wide variety of applications provides additional value because development derived from one application area is shared with other users, thus ameliorating the costs across a wide user base. ESRI currently has an approximate 36 percent share of the GIS software market worldwide, more than any other vendor. This market share includes 75 percent of all geoprocessing software sales to the U.S. federal government.

ESRI software offers the best value for the customer. ESRI technologies, experience, and relationships all help customers realize significant benefits of cost, performance, and value in both the near and long term.

Federal Agencies Using GIS

The following is a sample of some of ESRI's federal government users. Visit their Web sites to see how ESRI technology is being put to work in the federal government.

Executive Agencies

- **Dept. of Health and Human Services (HHS)**
  - Office of the Secretary of Health and Human Services
  - Administration for Children and Families
  - Administration on Aging
  - Agency for Healthcare Research and Quality
  - Agency for Toxic Substances and Disease Registry
  - Centers for Disease Control and Prevention
  - Centers for Medicare & Medicaid Services
  - Food and Drug Administration
  - Health Resources and Services Administration
  - Indian Health Services
  - National Institutes of Health
  - Program Support Center
  - Substance Abuse and Mental Health Services Administration

- **Dept. of Agriculture (USDA)**
  - Agriculture Marketing Service
  - Animal & Plant Health Inspection Service
  - Farm Service Agency
  - Food & Nutrition Services
  - Food Safety & Inspection Service
  - Foreign Agricultural Service
  - Forest Service
  - Grain Inspection, Packers & Stockyard Administration
  - Natural Resources Conservation Service
  - Rural Development

- **Dept. of Energy**
  - Bonneville Power Administration

- **Dept. of Housing and Urban Development (HUD)**

- **Dept. of the Interior (DOI)**
  - BIA
  - BLM
  - Bureau of Reclamation
  - Fish & Wildlife Service
  - Geological Survey
    - National Biological Service
    - Water Resources
  - Minerals Management Service
  - National Park Service

- **Dept. of Commerce (DOC)**
  - Bureau of the Census
  - NOAA
    - National Weather Service

- **Dept. of Defense (DOD)**
  - Dept. of Air Force (USAF)
  - Dept. of Army (USA)
  - Dept. of Navy (USN)
  - NATO
  - U.S. Marine Corps (USMC)

- **Defense Agencies**
  - Defense Intelligence Agency
  - DTRA
  - NIMA
  - National Security Agency (NSA)

- **Dept. of Justice (DOJ)**
  - Civil Rights Division
  - Drug Enforcement Admin (DEA)
  - FBI
  - Immigration and Naturalization Service

- **Dept. of Labor**
  - Bureau of Labor Statistics
  - OSHA

- **Dept. of State (DOS)**

- **Dept. of Transportation (DOT)**
  - Bureau of Transportation Statistics
  - FAA
  - Federal Highway Administration
  - U.S. Coast Guard

- **Dept. of the Treasury**
  - U.S. Customs Service

- **Dept. of Veterans Affairs**
  - Veterans Health Affairs

Legislative Entities

- Library of Congress
- Senate Reapportionment Committee

Judicial

- U.S. Court Administrative Office
- U.S. Courts Library

Independent Establishments and Government Corporations

- CIA
- EPA
- FEMA
- General Services Admin. (GSA)
- NASA
- Nuclear Regulatory Commission
- Tennessee Valley Authority (TVA)
- U.S. Agency for Int'l Development (USAID)
- U.S. Postal Service (USPS)

Maximizing Benefits and Value

ESRI-based solutions offer a number of features that will help any customer realize both near- and long-term value. The table below highlights ESRI benefits.

ESRI Features and Benefits

Feature	Benefit
Maturity of software	Increased reliability and robustness reduce risk.
Investment in research and development	Provides more functionality per program dollar invested.
Customer install base (both in number of seats and types of industries)	Generalized, robust solutions, with research and development costs shared widely.
Customer support/infrastructure	Responsive to large, demanding customer base.
Compliance with standards	Interoperability reduces implementation costs.
Anticipation of trends	Flexibility for the future adoption of leading technology.
Stability, maturity, and size of ESRI	Reduces risk for the long term.

Commitment to Industry Standards

ESRI desktop client software uses an open modular architecture based on Microsoft's Component Object Model (COM). COM is the industry standard and the leading technology used in building component-based software. ESRI chose COM as its fundamental technology because it enabled the development of geoprocessing objects using a "fine-grained" object framework. This framework enables customers to develop, customize, and extend geoprocessing software systems at the detailed, core level. This ability means an object framework could be used or extended at the function-call level of a system's implementation. ESRI's open modular architecture also supports the following:

- Development languages—Visual Basic®, C, Extensible Markup Language (XML), HTML, Java™

- Protocols—TCP/IP
- Architecture—COM, .Net
- Databases—Oracle®, Informix®, DB2®, SQL Server™

ESRI is an active participant in developing major standards for geoprocessing interoperability through standards bodies such as International Standards Organization, American National Standards Institute, and the Open GIS Consortium (OGC). ESRI is a leader in the development and adoption of standards-based COTS and a longtime member of the OGC. ESRI is a principal member of OGC and active in the organization including membership on the OGC Board of Directors; seats on the Planning and Technical Committees; and participation in test beds, pilot projects, and specification products.

ESRI was lead author for the OGC Simple Features SQL standard submission and participated in the COM and CORBA submissions. ESRI is one of the first vendors to have OGC interfaces that have been through the OGC conformance testing program. ESRI contributes to the standards to ensure future geoprocessing interoperability.

The ArcGIS™ and ArcSDE™ software products have been OGC certified.

Market Presence and Stability

ESRI has exceptional market presence and stability, as illustrated by our customer installed base and extensive domain knowledge and experience. These factors translate to extraordinary benefits to the customers by minimizing product reliability, availability, and maintainability risks.

ESRI occupies a robust presence in the geoprocessing community, offering the following benefits to any program:

- More than 417,000 sites in excess of one million seats of software
- Seventy-five percent of the geoprocessing software sales to the U.S. federal government
- An extensive community of business partners including
  - More than 370 resellers
  - More than 500 developers
  - More than 70 data publishers
- Seventy-five distributors in more than 136 countries—a global presence

ESRI offers immediate and future value in software product testing, product maturity, requirements development, information exchange, and overall economies of scale.

ESRI has demonstrated leadership in GIS engineering and a long-term commitment to spatial data products and services. ESRI offers the following strengths to a customer:

- Proven program management, systems and software engineering, and analysis
- Experienced technical staff with product development success

- Unmatched knowledge of the geospatial community and its data and products
- Dozens of active contracts supporting the integration of geospatial analysis and terrain analysis functionality into defense and intelligence systems
- Wide use in U.S. Federal Departments of Justice, Energy, Interior, HHS, and State as well as numerous state and local governments
- Wide use in international NGOs such as World Health Organization, Pan American Health Organization, and United Nations

ESRI offers a deep understanding of the geospatial community and technologies. This experience contributes directly to the immediate reduction of programmatic, technical, schedule, and cost risk.

Minimizing Costs

ESRI's continued reinvestment in product enhancements provides new functionality to meet existing and emerging requirements.

All of these savings are a direct result of the healthy market posture of ESRI such as a large customer base, revenue that permits substantial business investments, significant economies of scale, and a team that can address all the challenges of a successful program.

Sustaining the Advantage

ESRI offers a wealth of long-term, nonquantifiable advantages. These long-term advantages constitute significant benefits to a customer and should be an integral part of a best value assessment.

- A strong, visible presence in the commercial, state, local, federal, and defense communities
- Commitment to research and development
- Ongoing customer support infrastructure
- Commitment to setting and anticipating industry trends
- User groups (community of users)

ESRI Presence

ESRI software is used throughout the U.S. federal government, state and local governments, universities, and commercial sectors to create and store data, analyze data, and publish the results of analyses in both hard-copy and digital format.

- Because of the already massive and growing presence of these COTS products in the various communities, the customer benefits from working with a known quantity.
- ESRI products are the de facto standard for much of the world, lowering the often hidden costs for integration.
- ESRI is a large, stable, and profitable company with sustained growth over three decades. ESRI has never required a reduction in force to meet fiscal obligations.
- ESRI has worked successfully with many other companies and integrators for more than 20 years to supply tools to customers demonstrating effective teamwork.

Long-Term Viability

Company stability is an important noncost factor that adds value by ensuring longevity to support and advance any program now and into the future. ESRI is a technically, administratively, and fiscally healthy corporation that is recognized as the technical and market leader in the GIS field.

ESRI, founded in 1969, is a privately held, financially growing company. ESRI's average annual growth of 23 percent and high customer revenues (more than $420 million in 2001) indicate ESRI's success. ESRI is the world's largest COTS mapping and GIS software company, with more than 2,500 staff worldwide and more than 1,800 employees in the United States.

Research and Development Investment

Beginning in 1997, ESRI invested more than $260 million in engineering and development. ESRI offers one of the largest COM-based GIS software suites available anywhere. ESRI has reinvested more than $228 million—30 percent of its revenue—into research initiatives in the past five years alone.

ESRI's software development philosophy has resulted in superior products that continue to withstand the tests of time and competition. ESRI's research and development efforts help define major new directions in geoprocessing technology. ESRI has easily maintained its status and functional performance track record as the world's leading developer of geoprocessing software systems.

Existing and future customers can capitalize directly on the value of these and future internal research investments.

Customer Support Infrastructure

Successful implementation of any new product depends on responsive, effective, reliable support, sustainable over the long term. ESRI provides a large and responsive support infrastructure that adds value by reducing the risk of inadequate support of software throughout the life cycle.

ESRI offers GIS users flexible training options including

- ESRI Instructor-led Training—ESRI's professional instructional staff teaches more than 35 courses at your offices or ESRI's many training facilities.
- ESRI Virtual Campus—Self-paced GIS education and training on the Web. The ESRI Virtual Campus offers courses in GIScience, GIS Applications, and GIS technology.
- ESRI Press—offers a wide library of self-study workbooks. Familarize yourself with GIS concepts and applications with text on GIScience and GIS case studies.

ESRI Professional Services

ESRI maintains a significant presence in the business of applying GIS technology and providing related services with ESRI Professional Services. Since 1969, ESRI has supported thousands of organizations throughout the world in the design, development, and implementation of GIS tools and technology. Services range from short-term implementation support to development of complete digital databases and application solutions including

- Database Services
- Data Publishing Services

- Programming Services
- Implementation Services

In addition, ESRI business partners provide a wide variety of GIS and application expertise and industry-specific software and service capabilities.

ESRI Technical Support

The ESRI Online Support Center (http://support.esri.com/) includes ArcObjects™ Online (updated once a week) and ArcScripts, which is a script library containing more than 2,000 user-written scripts. In addition, the Support Center offers discussion groups, frequently asked questions, product documentation, and a searchable knowledge base.

ESRI has a proven corporate infrastructure and culture that can successfully build, distribute, support, and evolve a compliant solution as a normal part of its business operations.

Summary

The major technical features and benefits of an ESRI-based approach include the following:

- Full benefits of a widely used, mature, mainstream COTS solution
- De facto industry standard
- Large active user community including a special interest group just for federal users
- Lower integration costs
- Growing corps of trained GIS technicians
- Standards-based, open development language and database
- Comprehensive support structure
- Open, interoperable solutions that permit extending functionality through other COTS
- Object-oriented approach
- Most comprehensive, robust, and proven collection of geoprocessing objects available in COTS

ESRI software solutions substantially reduce programmatic, technical, schedule, and cost risks beyond that of any alternative GIS approach. We have demonstrated this intrinsic value in the areas of

- Technical expertise and compliance with requirements
- Robust software functionality
- Demonstrated commitment to industry standards
- Market presence and stability
- Domain knowledge and experience
- Ability to remain viable and expansive in the long term

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ESRI provides the best value available by maximizing benefits and minimizing costs while sustaining optimal capabilities and performance.

How to Buy

As a federal agency or authorized federal contractor, you have several easy-to-use options when purchasing software from ESRI.

ESRI offers the federal government a scalable family of commercial off-the-shelf (COTS) GIS software, training, services, and technical support through our ESRI Federal GSA Schedule.

A Blanket Purchase Agreement (BPA) under the GSA Federal Supply Schedules Program has been permitted for a long time. Federal Acquisition Regulation (FAR) 13.303-2(c)(3) states that "BPAs may be established with Federal Supply Schedule contractors...".

ESRI federal contracts offer the ESRI family of GIS software to eligible agencies.

Contact the ESRI federal team direct at 909-793-2853, extension 2243, or send an e-mail to federal@esri.com.

For more than 30 years ESRI has been helping people manage and analyze geographic information. ESRI offers a framework for implementing GIS technology in any organization with a seamless link from personal GIS on the desktop to enterprisewide GIS client/server and data management systems. ESRI GIS solutions are flexible and can be customized to meet the needs of our users. ESRI is a full-service GIS company, ready to help you begin, grow, and build success with GIS.

Corporate

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(1-800-GIS-XPRT)

or contact an ESRI reseller near you.

Send e-mail inquiries to

info@esri.com

Visit ESRI's Web page at

www.esri.com

Outside the United States, contact your local ESRI distributor. For the number of your distributor, call ESRI at 909-793-2853, ext. 1235, or visit our Web site at

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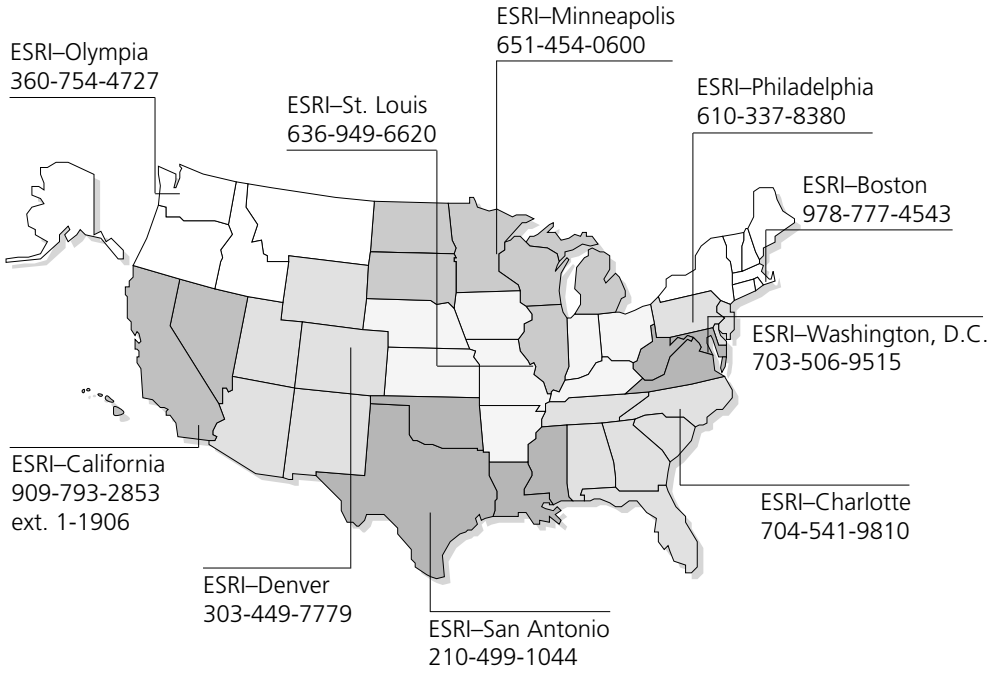

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