




ArcGIS

as a

Platform

Industry Perspective





“GIS is changing the conversation, allowing the integration of all the factors that should be addressed on a particular decision.”

Jack Dangermond, Esri President



ArcGIS as a Platform

In this report, Jack Dangermond, Esri President, highlights how ArcGIS is transforming the public sector, and what the future holds for geographic information systems (GIS).

Throughout history, and continuing today, the field of geography has led to a deeper awareness of our surroundings, providing a visual representation of the synergistic relationship we share with the Earth. In the ancient world, Greek cartographers created maps that attempted to link the physical world with the heavens. Maps allowed Ferdinand Magellan, Christopher Columbus, and Marco Polo to navigate our oceans. Nearly 315 years after Columbus set sail, President Thomas Jefferson commissioned explorers Meriwether Lewis and William Clark to explore the American frontier, creating hundreds of maps depicting the land west of the Mississippi. Today, geography continues to provide an increasing awareness of our surroundings, and has evolved far past the rudimentary tools used by Lewis and Clark.

Clearly, geography has played an essential role in increasing awareness and knowledge of our world. Although the field of

geography continues to evolve, cartography has always served as medium to tell compelling stories. Geographic information systems (GIS) has not only revolutionized cartography and geography, but has led to new insights and findings in nearly every field of study. As society becomes increasingly complex and dependent on data analysis, GIS now provides a solution to synthesize complex and multivariate data visually through maps. With GIS, organizations can find new efficiencies, improve collaboration, and identify new insights that would otherwise remain unknown without spatial analysis.

In this report, Jack Dangermond, Esri President, provides an overview of Esri's GIS platform, ArcGIS. Dangermond provides insights on how GIS continues to evolve, and how through emerging technology, such as the cloud, mobile, and location analytics, GIS technology is transforming the public sector. With the release of the cloud-based service,

ArcGIS Online, Esri has created a platform that provides the opportunity for both online mapping, and enterprise geospatial content management, reimaging the way the public sector analyzes data to improve decision-making.

Through ArcGIS, Esri has created a geographic platform that extends GIS applications beyond traditional GIS users. To improve collaboration efforts, organizations are using Esri's ArcGIS platform across their agencies. Further, the emerging trend of real-time location analytics has extended the adoption of GIS technology. This report will highlight ArcGIS for three GIS user communities, organizations, developers and location analytics.

Dangermond's interview reaffirms that geography is a science, and through a better understanding of geography, we can gather a stronger understanding of our world and our communities.

How the ArcGIS Platform is Transforming Government

ArcGIS provides a structured environment for map making and allows organizations to compile geographic information to share and visualize spatial data. Dangermond notes that ArcGIS Online is distinctly different than traditional GIS desktop/server tools. Since ArcGIS Online is built with a cloud and device architecture, GIS professionals can easily manage their organizations' geospatial content using cloud based mapping tools and infrastructure. With the use of the cloud, agencies can quickly collaborate, share maps, and bring data to life with mapping. As Dangermond states, "What we see happening is a huge technology shift, the cloud is creating a new modality for the usage of GIS information."

In the latest release of ArcGIS Online, users can access geospatial functions on any device, anywhere and at any time. Also, ArcGIS Online includes a library of map applications and templates for users to share and create customized maps, which are all

accessible on mobile devices, tablets and on desktops. ArcGIS features include:

- ▶ An easy and ready to use service that includes: self-service mapping, applications across all devices and browsers, and geoprocessing
- ▶ Improved features for developers
- ▶ Hosting and sharing applications and content
- ▶ Cloud infrastructure that creates a dynamic and scalable GIS infrastructure
- ▶ Built on open standards
- ▶ Supports real-time data server networks and all geospatial data types
- ▶ Simple access through a Software as a Service (SaaS) model
- ▶ Integration with business intelligence (BI) tools

// The new ArcGIS platform strategy will change the way that organizations collaborate and work together. //

- Jack Dangermond



ArcGIS for Organizations

As the public sector is tasked to increase collaboration efforts, ArcGIS Online is transforming collaboration practices within agencies. Through ArcGIS, users can access thousands of maps and resources made by the GIS community as well as data sets, maps, applications and tools to improve their GIS initiatives. By creating a common GIS environment, agencies can improve collaboration practices through spatial data and fully leverage GIS investments agencies have made. Dangermond explains, “The creation of new web apps that are associated with the cloud supports very simple mapping and very simple use of geographic data in such a way that many more people are learning how to make maps, on top of the base maps and infrastructure maps that our traditional users are making.”

With ArcGIS, Esri has led the charge in how GIS can be leveraged by organizations. ArcGIS now provides organizations the ability to more broadly adopt GIS, and integrate with the cloud, mobile, and other web applications. “Traditional GIS users work through the traditional desktop and user experience; with ArcGIS Online, we want to share maps with everybody,” states Dangermond.

As the cloud has facilitated increased adoption of ArcGIS Online, the types of GIS users have evolved. ArcGIS Online benefits many different kinds of users, and in order for GIS to continue to evolve, GIS experts must still exist within the agency to serve as an authoritative source for GIS initiatives, manage GIS infrastructure and perform the science backbone for GIS.

ArcGIS for Developers

Developers can use ArcGIS to assist in developing applications, and extend the tools for GIS and non-



This US government data portal leverages ArcGIS Online: www.geoplatform.gov

GIS users. Dangermond notes, “We are opening up ArcGIS Online with a series of development code and documentation, to allow everyone from simple startups to enterprise developers to have access to online maps and geo-services.” Esri has provided the development community with a robust set of tools and services to facilitate increased adoption and support of the developer community.

In support of developers and the start-up community, Esri has opened offices in startup hotbed cities such as San Francisco and Santa Monica, California. Dangermond mentioned that Esri hosts meet-ups and events to help promote and engage the GIS developer community. Through these kinds of interactions, Esri can educate developers on how to best leverage ArcGIS tools to build applications, services, and support revenue growth.

Through ArcGIS, Esri has provided developers with access to a suite of ArcGIS Runtime Software Developer Kits (SDKs), which can be used to create custom GIS business applications for mobile devices and tablets. These applications can run on any operating system and be deployed in the Apple App Store, or the Android and Microsoft Marketplace.

Further, in addition to SDKs, developers have access to ArcGIS APIs to aid in development. ArcGIS Runtime allows developers to create applications for desktop and cloud users with small runtimes and lightweight deployment features.

ArcGIS for Location Analytics

An emerging trend in the geospatial community is the use of location analytics and integration with business intelligence (BI), enterprise resource planning (ERP) and customer relationship management (CRM) software. Traditionally, BI, ERP, and CRM analytics have not been defined spatially, either because the data could not be accessed within the organization, or the need to spatially portray data had not been expressed.

Organizations typically use BI to make charts, graphs, and tables, but have yet to leverage the power of spatial data. With ArcGIS, paired with an organization's BI, ERP, and CRM data, organizations can identify new insights and find new relationships to improve business workflows, operations, and improve how services are delivered to customers. ArcGIS and location analytics seeks to support and

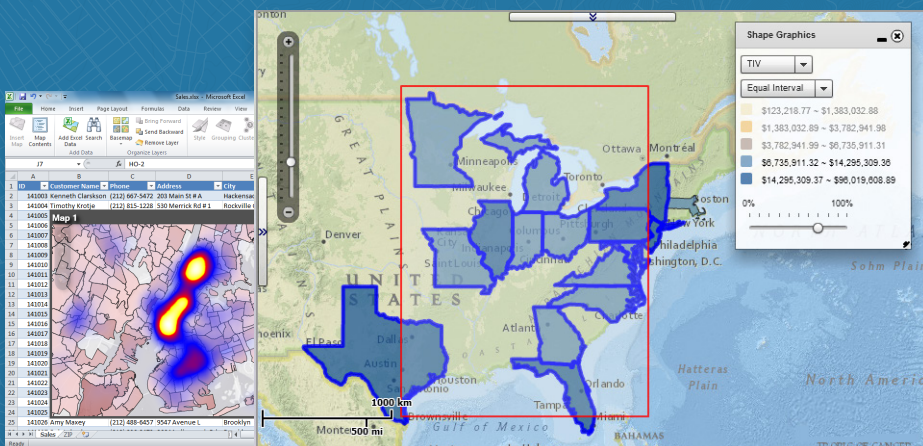
connect business intelligence platforms to GIS, to develop geographic analysis of the rich and complex analytical BI data organizations collect.

For organizations, BI and GIS integration is a promising development. By mapping BI information, agencies can unlock new insights that would traditionally not be known or understood. The ArcGIS platform easily integrates with BI information. Dangermond states, "Our partners are really excited because in a non-disruptive way, all of a sudden fantastic maps can be made from BI information."

Mapping the Future of GIS

Today, GIS continues to evolve and mapping is redefining the way we interact with our surroundings. The public sector is facing increasingly complex challenges that require sophisticated statistical analysis tools to understand, manage, and visualize data.

Yet, today is unlike any other time in history, as Dangermond explains, "The difference today is that now you can register maps and services in the



“What I am excited about is that GIS is giving insights, and particularly spatial statistical insights, so that a policy might be changed.”

-Jack Dangermond

ArcGIS cloud and discover maps and mash them up to discover relationships in seconds. You don't have to do all the data collection yourself, you are actually leveraging the data that is already digitized by each of the federal, state or local agencies.”

As Dangermond asserts, ArcGIS capitalizes on the wisdom of the crowds, and allows GIS users to connect with the passionate GIS community to share public sector resources and information. “This platform opens the way for simple crowdsourcing of observational data; people are beginning to share their observations, so every citizen or field worker becomes a sensor on a map, and that real time information goes back into web maps, which can be combined with other layers of data.”

When asked what the next phase of GIS will be, Dangermond responded that real-time data ana-

lytics would shape the future of GIS. This may involve spatially representing real time traffic, real time transactional data, or real time environmental monitoring, which will have an impact on public sector policy making.

GIS is certainly in a transition phase, and through the ArcGIS platform, the public sector can leverage cloud technology, big data, and mobility to transform how government operates. ArcGIS as a platform has improved GIS for advanced users, and made GIS more accessible for new users. Esri has truly created a geographic platform through ArcGIS, providing the GIS community the platform to share resources and knowledge, expanding GIS applications and transforming the public sector. ▲

About Esri

When Esri was founded in 1969, we realized even then that geographic information system (GIS) technology could make a difference in society. Working with others who shared this passion, we were encouraged by the vast possibilities of GIS.

Today, our confidence in GIS is built on the belief that geography matters - it connects our many cultures and societies and influences our way of life. GIS leverages geographic insight to ensure better communication and collaboration.

Explore our website to discover how our customers have obtained the geographic advantage by using Esri software to address social, economic, business, and environmental concerns at local, regional, national, and global scales. We hope you will be inspired to join the Esri community in using GIS to create a better world.

About GovLoop

GovLoop's mission is to “connect government to improve government.” We aim to inspire public sector professionals by serving as the knowledge network for government. GovLoop connects more than 65,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington D.C with a team of dedicated professionals who share a commitment to connect and improve government.

For more information about this report, please reach out to Pat Fiorenza, Senior Research Analyst, GovLoop, at pat@govloop.com, or follow him on twitter: [@pjfiorenza](https://twitter.com/pjfiorenza).



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GovLoop
734 15th St NW, Suite 500
Washington, DC 20005
Phone: (202) 407-7421
Fax: (202) 407-7501