WHY YOU NEED A GEOSPATIAL STRATEGY

and a Five-Part Process for Creating One

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Table of Contents

THE BIG IDEA

The value of geography—the power of *where*—has been evident across industries and sectors for decades. Location transforms raw data into strategic insight. Organizations that see and analyze their data in geographic context consistently outperform competitors that use traditional analytics.

Asking "where?" often leads to the best way to meet crucial operational and business challenges:

- Resilience—Where should we prioritize the maintenance and replacement of aging infrastructure?
- Crisis response—Where do we need to focus our efforts to respond quickly to emergency incidents, reduce impacts, and keep people safe?
- Growth—Where is the best location to expand our business to reach new, promising markets, and where are the current and future risks to our supply chains?

These challenges demand more than spreadsheets. They require geographic information system (GIS) technology—enterprise-level technology that enriches data through mapping and location intelligence. This reveals patterns invisible to traditional analytics.

GIS transforms data into dynamic maps that answer questions of both where and why, powering smarter decisions and more efficient operations.

GIS technology opens unprecedented possibilities, and a geospatial strategy ensures that these possibilities become business realities. By aligning location-based insights with strategic objectives, organizations build analytical, operational, and decision-making capabilities that compound over time. They turn geographic insight into sustained market leadership and competitive advantage.

GIS LEADERS: WHY A GEOSPATIAL STRATEGY IS MORE IMPORTANT THAN EVER

Modern data collection has transformed business intelligence. Sensors, drones, and artificial intelligence now generate location-rich data at a larger scale and lower cost that was not feasible just a few years ago.

However, data abundance creates its own challenge. Decision-makers must convert vast data streams into intelligence that matters. The organizations that succeed have learned to filter signal from noise, focusing on insights that drive specific business outcomes.

GIS excels at this transformation, converting data into richer business intelligence through the lens of location. However, realizing its full potential requires more than technology deployment—it demands strategic alignment, resource commitment, and governance process. Leading organizations address these requirements by developing comprehensive geospatial strategies.

The benefits of a well-orchestrated geospatial strategy include:

- Cross-functional alignment—Organizations leverage common business capabilities, reducing siloed decision-making.
- Increased operational efficiency—Automated spatial analysis replaces manual processes, freeing resources for strategic work.
- Data governance—Location-enriched data becomes a trusted enterprise asset.
- Smarter, evidence-based decision-making—Spatial analysis reveals opportunities and risks that are invisible in traditional reports.

Industry leaders recognize GIS as an essential information system, not optional technology. They invest in geospatial strategies that align spatial capabilities with business priorities. This ensures optimal returns on their technology and data investments.

Esri, the world leader in GIS technology, partners with organizations at every stage of this journey, from initial strategy development to ongoing optimization.

EXECUTIVE OVERVIEW: WHAT IS GAINED FROM GIS AND A GEOSPATIAL STRATEGY

Reframing conventional business problems into problems of location **can convert geographic insights into tangible financial outcomes**.

Take, for example, one of the world's largest logistics companies. The company used interactive maps to save one mile per driver per day for a year, saving up to $50 million annually. Insights from geospatial analysis also saved millions of dollars by eliminating left turns on driver routes.

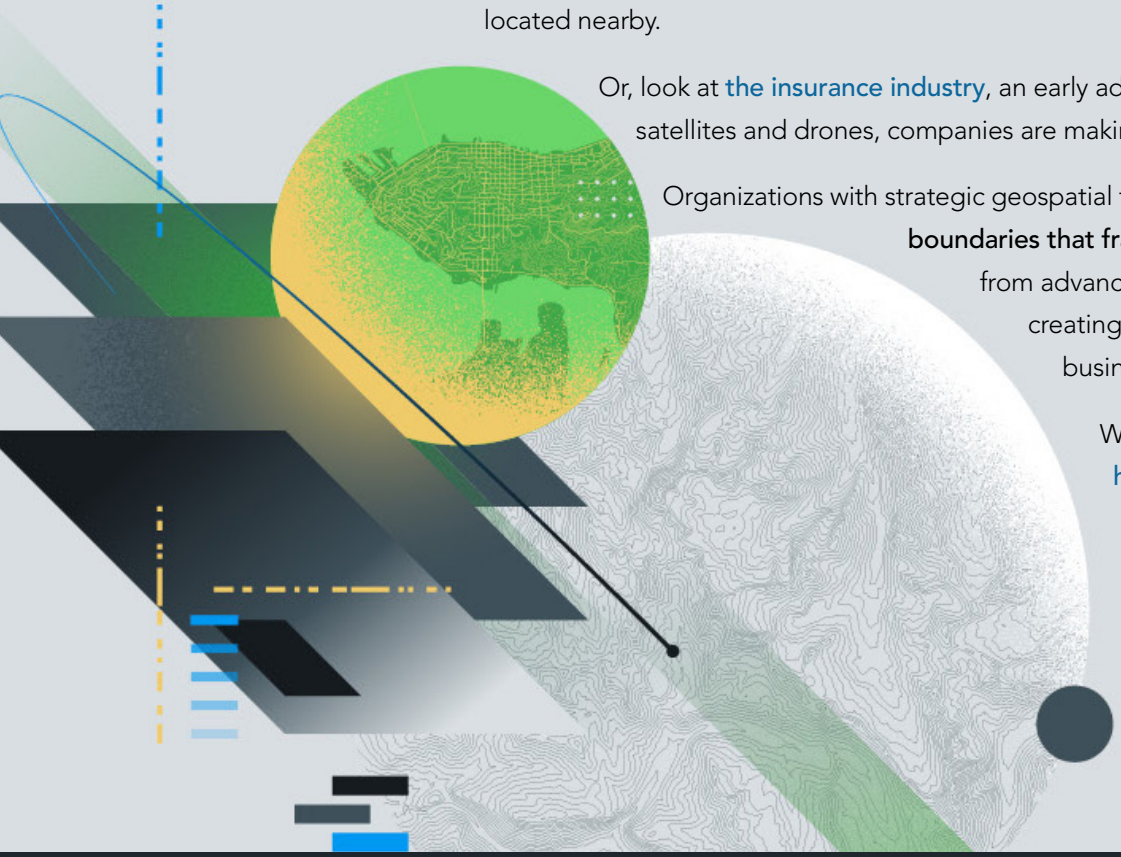
The company's senior director of process management had this to say: "I'm not a GIS guy and I've never brought a GIS project to the C-suite. I care about business process. We bring GIS inside of process change."

Simply put, GIS is a technology that **strengthens an organization's overall digital strategy**. Most data is geospatial or georeferenced in some way, but the insights it may offer are often locked away. A geospatial strategy makes the most of data and skills, ensuring that geospatial information can be leveraged.

A major financial institution formerly relied mostly on intuition to choose new branch locations. Now, it uses GIS in more than 90 percent of analysis projects, helping choose the best places to open new banks.

Geospatial technology also helps organizations **deliver precisely targeted experiences that resonate with customers in their specific contexts** based on location. Despite there being more ways than ever to reach customers or constituents, it's more difficult to break through the clutter and reach an intended audience.

Consider the large Southern California county that mapped out its human services. The county's leaders realized large segments of the population weren't using the resources because they were too widely spread out or not located nearby.



Or, look at the insurance industry, an early adopter of geospatial tools. By using available imagery from satellites and drones, companies are making disaster assessments faster and speeding claim payments.

Organizations with strategic geospatial technology implementations are **dissolving organizational boundaries that fragment mission-critical data**. They've repositioned GIS from advanced mapping technology to enterprise data infrastructure—creating authoritative information hubs that fuel decisions across all business functions.

When considering global risks to its business, one well-known hotel company displayed its several thousand properties on a single GIS-enabled dashboard. The company added layers of real-time threats by location—disaster risks, public health threats, crime trends, and geopolitical events. The analysis not only helps the company react to what's happening now but also guides long-term decisions.

Key Takeaway

Geospatial intelligence has evolved from a specialized technical capability into a strategic business asset. Organizations that elevate GIS from IT implementation to enterprise strategy unlock value and opportunities others miss.

A geospatial strategy **cultivates location intelligence as an enterprise-wide capability, connecting previously isolated business functions**. GIS delivers transformative value when its analytical power becomes an accessible resource for decision-makers across all organizational levels.

A worldwide energy producer with tens of thousands of employees systematically embraced an enterprise platform approach to GIS instead of building self-contained solutions for each business case. Why? The company's leaders believed GIS should be treated no differently than the company's other enterprise technologies. With a single technology platform accessible by anyone in the company, employees can create the tools they need or analyze data without the cost and time of tasking a central department. They can discover and share valuable information immediately from a common platform.

How do industry leaders unlock new sources of revenue growth and customer loyalty and enrich data-driven decision cultures? Through a structured five-stage process—plan, organize, innovate, cultivate, and grow—that transforms geospatial technology into a sustainable competitive advantage.

HOW TO CRAFT A GEOSPATIAL STRATEGY

Without a geospatial strategy, organizations of any size will struggle to realize the full potential of their spatial data and sustain a successful GIS program. Esri Professional Services works with you to establish a path to geospatial excellence—one that meets the unique requirements and goals of your organization. We guide your organization through the five-part process.

STEP 1 PLAN

STEP 2 ORGANIZE

STEP 3 INNOVATE

STEP 4 CULTIVATE

STEP 5 GROW

STEP 1

PLAN

ALIGN YOUR GIS PROGRAM WITH BUSINESS GOALS TO ADVANCE YOUR ORGANIZATION'S MISSION AND PRIORITIES

The cornerstone of an effective geospatial strategy is business alignment. GIS leaders must conduct rigorous discovery processes to identify significant challenges where geospatial intelligence can deliver tangible business value across an enterprise. Focus on strategic value and business impact—not technical ease—when deciding which projects to pursue first.

In one of California's largest counties, community leaders realized they needed a better way to reach residents who were not accessing essential services. The county needed to facilitate collaboration among the health system, child support services, the fire department, and public social services to achieve the ultimate goal of widening access.

To accomplish this, Darryl Polk, CTO for Riverside County, and his team built an integrated service platform. GIS was a central component, collecting data in hubs and providing location-based insights on where to allocate resources for maximum impact.

However, this effort began with people, not technology. The county focused first on residents' needs and built cooperation across 17 departments. The results speak for themselves: 90 percent of Riverside County residents rated the new integrated services platform as satisfactory or better.

Polk's advice to tech leaders: Focus on the challenges of the people you're serving. "Business process will eat technology for lunch every single day," he said.

Business Needs Drive a Geospatial Strategy Road Map

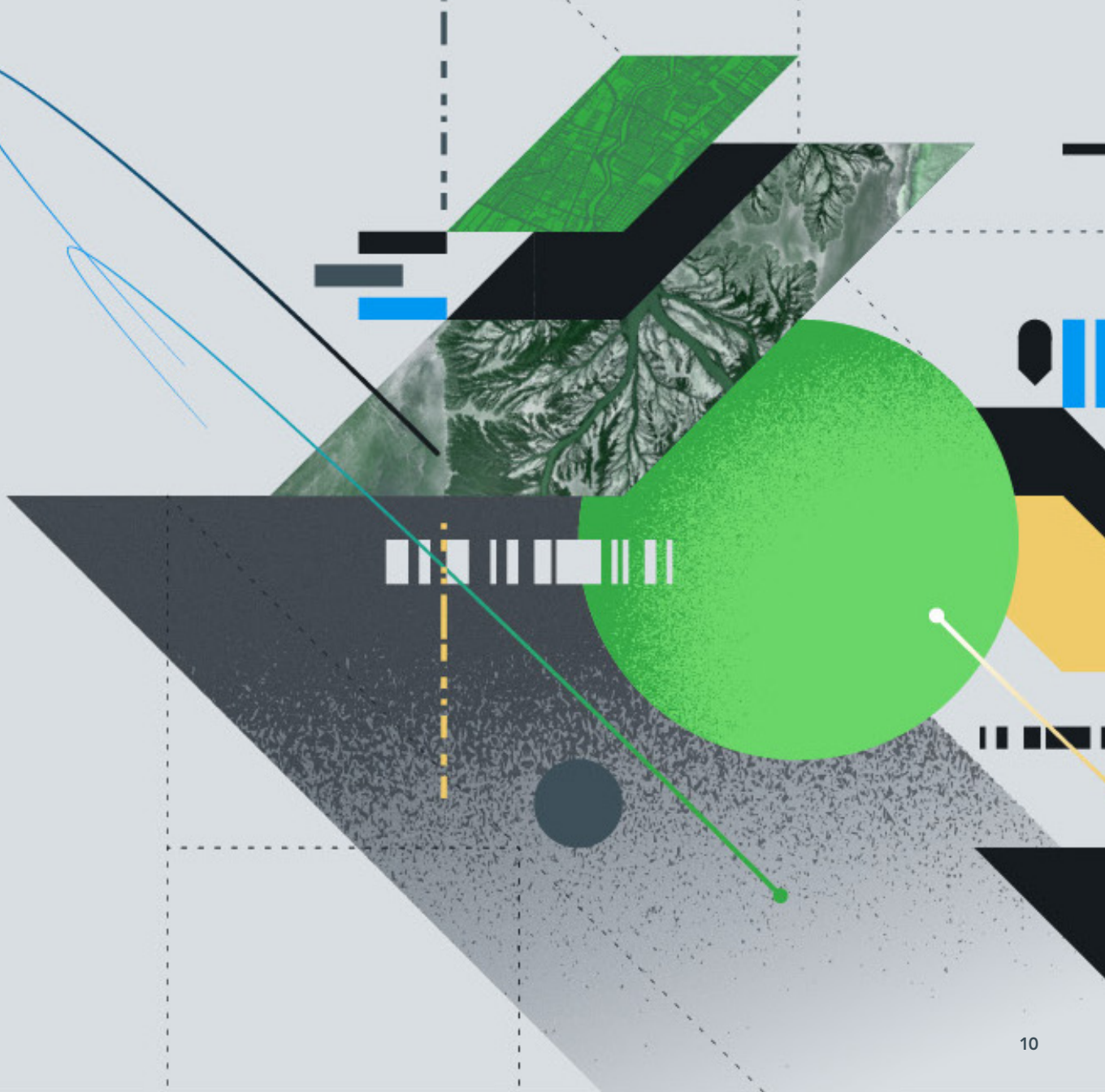
Start with structured discovery conversations across the organization. Meet with collaborators:

- Executives to understand strategic priorities
- Department leaders to identify operational challenges

These discussions reveal both long-term vision and daily operational needs. Use these insights to build a road map that includes:

- Measurable objectives
- Defined strategic goals
- Clear success markers and key performance indicators (KPIs)
- Potential roadblocks

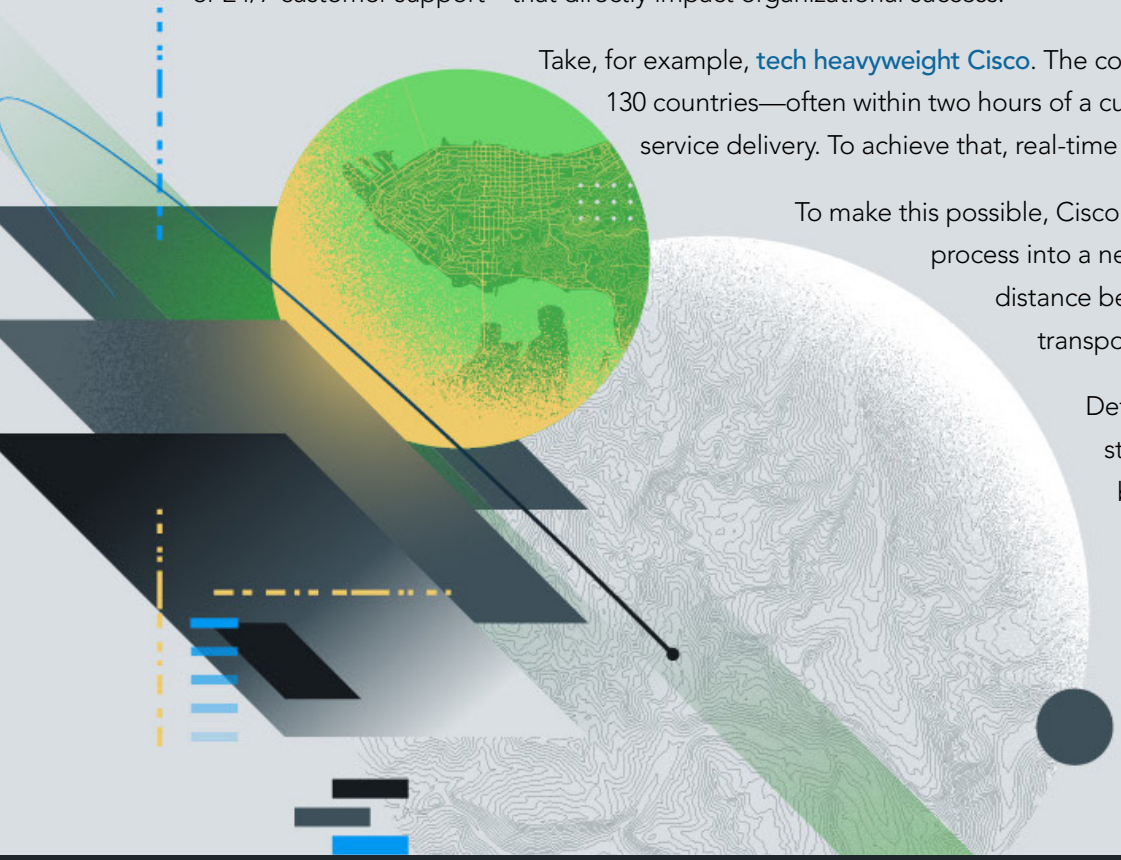
This focused approach ensures a geospatial strategy that delivers tangible business value by directly addressing an organization's highest priorities.



Translating Business Needs into Geospatial Capabilities

Discovery meetings reveal how location intelligence can support organization-wide strategic priorities. This clarity helps identify which geospatial capabilities can close critical gaps and create new opportunities.

The next step is matching specific business requirements with the right geospatial solutions. Focus on core operational needs—such as overnight delivery or 24/7 customer support—that directly impact organizational success.



Take, for example, tech heavyweight Cisco. The company delivers parts and services to millions of customers in more than 130 countries—often within two hours of a customer's request. Cisco leaders wanted to enable more rapid, reliable service delivery. To achieve that, real-time capabilities were crucial.

To make this possible, Cisco transformed its complex service supply chain from a spreadsheet-based process into a near real-time digital twin powered by GIS. This digital twin shows the distance between parts and where they were needed, as well as available flights or transportation routes that could get those parts to people faster.

Determining where location intelligence will best be applied is a critical first step in developing a successful geospatial strategy. Delivering measurable business value will garner executive support and trust, optimize workflows, and make it easier to integrate geospatial tools into other areas of the enterprise.

As the CTO for Riverside County emphasized, tech leaders should focus first on what will make the biggest impact before they focus on the tech itself.

STEP 2

ORGANIZE

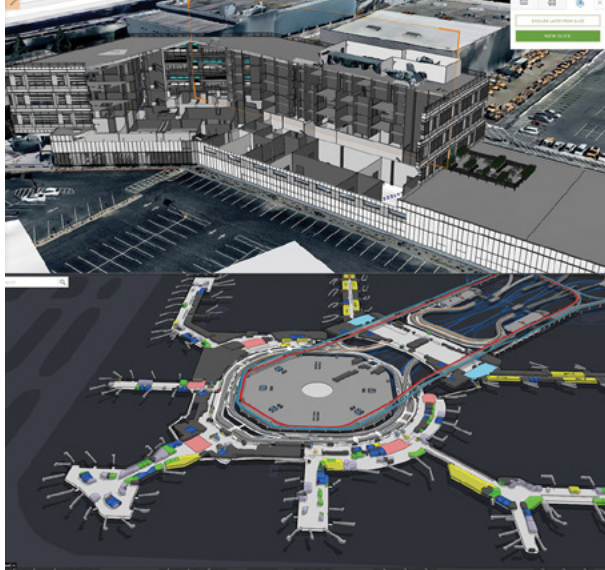
ESTABLISH CLEAR GOVERNANCE FOR EFFECTIVE, EFFICIENT, AND SECURE USE OF YOUR GIS TECHNOLOGY

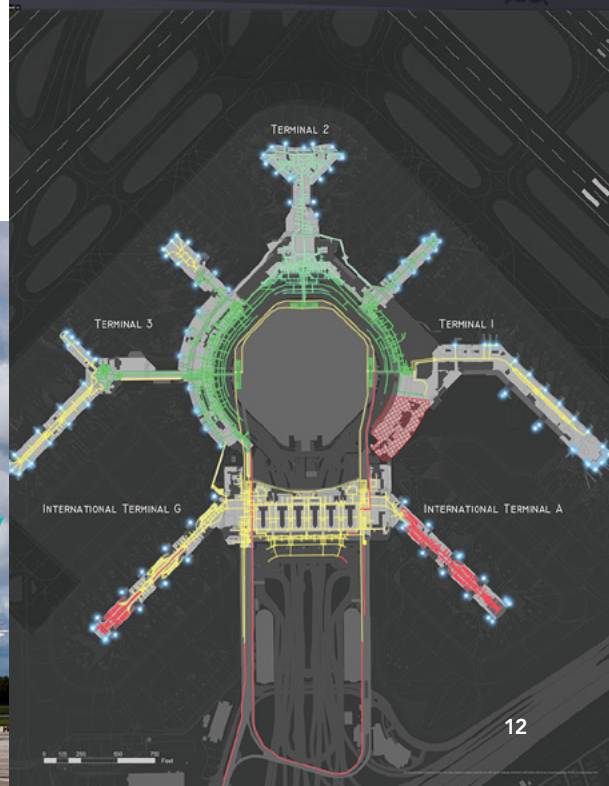
With a clear understanding of business needs and how geospatial capabilities can address them, the next step in developing a geospatial strategy is establishing GIS governance.

Governance is more than just rules; it is a framework for ensuring that a geospatial investment delivers business value.

Esri works with customers to ensure that their governance is purpose driven and aligned with business priorities, addressing both the strategic direction and daily operations.

As part of an effective geospatial strategy, governance should also include well-defined decision-making roles, procedures, and performance metrics; strong data security; and appropriate access. Working with Esri Professional Services, organizations also adhere to strict data integrity and quality and stay open to continuous improvement.





Ireland's Busiest Airport Relies on Data Integrity and Security

It's important to have dedicated GIS governance beyond what's established in other domains, such as in IT. While IT governance enables general technology oversight, GIS governance is equipped to manage the unique complexities of geospatial data, systems, and workflows.

For instance, the spatial data systems manager for Dublin Airport was tasked with organizing records and processes for the airport and its more than 3,000 employees. There was an overwhelming volume of data housed in disparate systems, including computer-aided design (CAD) files of airport infrastructure and assets.

Faced with tackling this huge set of data and making it easily accessible for all of the airport's workflows, the manager's first step was to ensure that the airport's data met the standards of the European Aviation Safety Agency for an upcoming audit. Disparate CAD files spread across different departments meant that there was no single location for a common, shared view of the data. Converting these CAD files into GIS layers would allow the manager and the spatial systems team to maintain a single data source that was up to date and verifiable.

With help from Esri Ireland's professional services, the airport built an ArcGIS™ foundation for the airport's GIS data, workflows, and asset management.

With this foundation in place, the airport moved from reactive to planned and predictive maintenance of data, improving data integrity. This bolstered multiple workflows, ranging from maintenance crews to the airside safety team.

Natural Gas Company's CIO Sets New Course for IT and GIS

Efforts within one US natural gas company reflect the core tenets of good geospatial governance—and how it can bring transformative business value.

When South Jersey Industries (SJI) hired Leonard Brinson Jr. as its first CIO, the executives had clear goals to modernize the natural gas company's operations. They tasked Brinson with rebuilding and expanding SJI's IT department and leveraging its powers to make the organization and its customers more successful.

Brinson methodically brought this vision to life through IT integration, GIS, and a spirit of service.

He observed SJI's IT department staff working diligently but noticed they weren't interacting much with their business colleagues. He made it clear that IT would no longer be a closed-off, underutilized department. Natural gas was SJI's business, but he wanted IT to be the heartbeat of the company.

Brinson's team mapped all of SJI's important activities and assets in GIS, creating a digital twin of the utility's infrastructure.

When a tornado struck southwestern New Jersey in September 2021, Brinson's integrated approach to the IT department and its GIS-powered digital twin proved invaluable. GIS gave teams access to critical information on dashboards in the control room and via mobile devices in the field.

Brinson's strategic vision, technology and data oversight, and focus on service delivery, as well as the way he empowered his workforce and secured investment, were crucial factors in the successful implementation and adoption of GIS.

For both Dublin Airport and SJI, leadership aligned geospatial governance with business priorities. By focusing on data quality, ensuring that geospatial data was accessible to the right people, and clearly defining decision-making roles, these two companies delivered business value.

STEP 3

INNOVATE

PARTNER WITH YOUR IT ORGANIZATION TO BUILD GIS-ENABLED SYSTEMS THAT SUPPORT BUSINESS NEEDS ACROSS THE ENTERPRISE

Now that business goals are understood and governance processes and policies are defined, it's time to build out the GIS.

Designing, building, and maintaining an enterprise GIS can be challenging in today's fast-moving IT world. Esri offers extensive on-demand resources and expert consulting services to help GIS leaders optimize their GIS for maximum enterprise value.

For example, Esri Professional Services helped the leaders at the Tennessee Comptroller Office of the Treasury (TNCOT) with their geospatial strategy by initially recommending that the agency migrate from ArcMap™ to ArcGIS Pro and later by advising how it should proceed with the upgrade to its enterprise GIS platform.

First, Esri conducted a study of TNCOT's IT architecture resources. This helped everyone better understand how to redesign the IT infrastructure and workflows. GIS staff could determine how many processors and how much RAM they would need, in addition to how many users and editors they could support.

By determining essential hardware requirements alongside user and editor capacity, TNCOT laid the groundwork for a well-governed and scalable GIS environment.

Key Areas of Focus for Innovation

Architecting a sustainable and scalable GIS involves several strategic decisions around business applications, data and data management, technology infrastructure, governance, delivery processes, workforce, and company culture. GIS leaders should ask questions that address fundamental needs and challenges in each of these areas.

When considering data and data management, for example, GIS leaders might ask questions like these: What standards of data quality do we apply? What level of access do we grant to geospatial datasets?

Tech leaders at Dublin Airport, operating under strict European aviation data rules and security policies, needed to address these very questions when deploying the airport's enterprise GIS platform.

Data needed to be secured internally while also allowing up to thousands of users—especially contractors working part-time at the airport—to access the data for ongoing projects.

Esri Ireland worked with Dublin Airport to build a system that included a suite of ArcGIS applications for a wide range of workflows, from airside safety to construction and maintenance coordination.

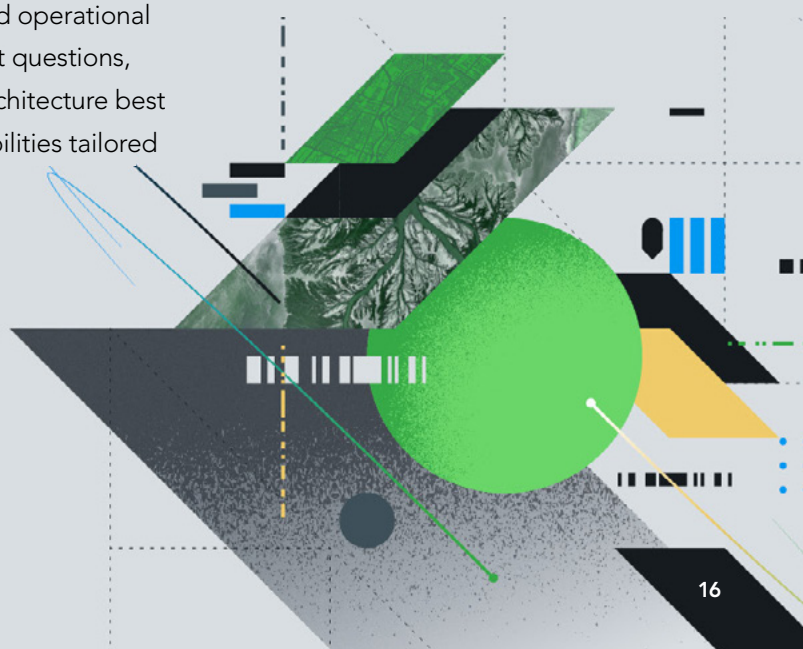
The airport's spatial data systems manager explained that prior to building the new system, employees had to use separate usernames and passwords to access different sources of data. Now, they have an active directory on ArcGIS that users can sign in to with one username and password. People use the same source of data—for any project—seamlessly.

At TNCOT and Dublin Airport, Esri experts helped tech leaders find the best deployment and operational models for their business. Asking the right questions, coordinating with IT, and following GIS architecture best practices gave them the geospatial capabilities tailored to meet their business needs and goals.

Additional Resources

The ArcGIS Architecture Center and the ArcGIS Well-Architected Framework provide valuable guidance on system design, common patterns, and essential architectural practices.

Learn more.



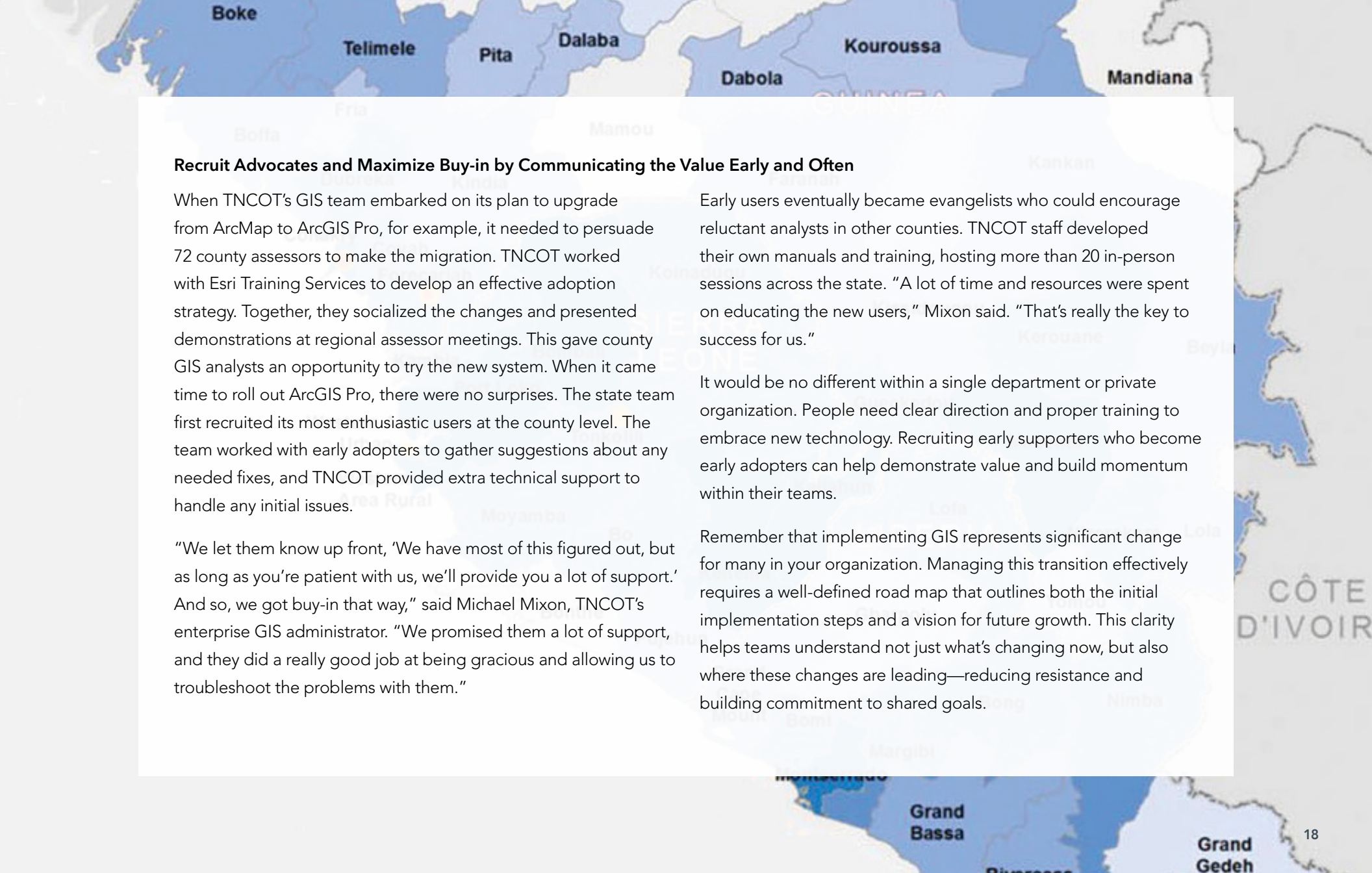
MANAGE CHANGE AND GENERATE THE INTEREST, ENGAGEMENT, AND BUY-IN YOU NEED TO DELIVER LONG-TERM VALUE WITH GIS

Strategic GIS deployment cannot thrive in departments that are isolated. Success requires building bridges across the organization and demonstrating real value to stakeholders who may be unfamiliar with geospatial technology or resistant to changing established practices.

The most effective approach is showing rather than telling. When stakeholders see GIS solving actual business problems, skepticism turns into interest. Many organizations have found success through hands-on workshops where colleagues experience the technology applied to their real-life workflows. This practical exposure helps people discover value for themselves rather than having it explained to them.

Equally important is communicating successes throughout the organization. When GIS helps staff reach a goal or overcome a challenge, share that story through internal channels and consider applying for external awards that validate the approach. Keep executive stakeholders informed about specific ways GIS is advancing strategic priorities—these efforts help secure continued support for expansion.

Don't overlook the power of internal champions. Enthusiastic users across different departments can demonstrate practical applications to their peers and help the technology spread organically throughout the organization.



Recruit Advocates and Maximize Buy-in by Communicating the Value Early and Often

When TNCOT's GIS team embarked on its plan to upgrade from ArcMap to ArcGIS Pro, for example, it needed to persuade 72 county assessors to make the migration. TNCOT worked with Esri Training Services to develop an effective adoption strategy. Together, they socialized the changes and presented demonstrations at regional assessor meetings. This gave county GIS analysts an opportunity to try the new system. When it came time to roll out ArcGIS Pro, there were no surprises. The state team first recruited its most enthusiastic users at the county level. The team worked with early adopters to gather suggestions about any needed fixes, and TNCOT provided extra technical support to handle any initial issues.

"We let them know up front, 'We have most of this figured out, but as long as you're patient with us, we'll provide you a lot of support.' And so, we got buy-in that way," said Michael Mixon, TNCOT's enterprise GIS administrator. "We promised them a lot of support, and they did a really good job at being gracious and allowing us to troubleshoot the problems with them."

Early users eventually became evangelists who could encourage reluctant analysts in other counties. TNCOT staff developed their own manuals and training, hosting more than 20 in-person sessions across the state. "A lot of time and resources were spent on educating the new users," Mixon said. "That's really the key to success for us."

It would be no different within a single department or private organization. People need clear direction and proper training to embrace new technology. Recruiting early supporters who become early adopters can help demonstrate value and build momentum within their teams.

Remember that implementing GIS represents significant change for many in your organization. Managing this transition effectively requires a well-defined road map that outlines both the initial implementation steps and a vision for future growth. This clarity helps teams understand not just what's changing now, but also where these changes are leading—reducing resistance and building commitment to shared goals.

Ensure That Stakeholder Needs Are Understood and Promote Collaboration Across Departments

Another factor contributing to a thriving and well-funded GIS across the enterprise is the momentum that comes from consistent real-life wins. Across departments, the progress builds with each GIS success. Consider the case of the humanitarian organization Médecins Sans Frontières (MSF), whose name translates to Doctors Without Borders. MSF began its GIS journey in 2013, and the need to apply GIS became urgent with the Ebola crisis of 2014. The organization needed accurate, detailed maps that could show the spread of Ebola. The value of those maps became even more apparent when a GIS specialist worked in the field with MSF's epidemiologists. The doctors returned from their missions as believers in GIS, wanting a specialist to accompany them on future missions. By 2021, MSF's GIS team had established the MSF GIS Centre, created a training curriculum, and built a geospatial resources portal for thousands of staff members to access across departments.

"In the past, we had to demonstrate our added value. This is done. It's not an issue anymore," said Mathieu Soupart, director of the MSF GIS Centre. What has helped build momentum for GIS, Soupart said, was a focus on supporting operations in a strategic way.

Tangible wins add up and other departments remember who and what helped. Sometimes it's a GIS team creating a portal for all relevant information about a city or county in preparation for a natural disaster. Other times it's a business leader tapping GIS analysts to help the company avoid costly risks based on location; or a contractor using GIS to precisely deliver materials, saving its client time and money.

In every case, GIS leaders recognize the technology's potential. The next critical step is to translate this technical capability into visible business outcomes with stakeholders across the organization.

Clear, Compelling Evidence of GIS Value

Johns Hopkins University's COVID-19 dashboard stands out as a powerful and universally recognized example of how GIS transforms complex data into actionable insights.

At the height of the COVID-19 pandemic, the dashboard became a lifeline for billions of people, providing daily updates and critical information on how to navigate an uncertain new reality. The dashboard gave visitors instant access to the most up-to-date and accurate global COVID-19 case numbers. For many, this was their first encounter with GIS—and it was a powerful introduction to its potential. Through the ArcGIS software-powered dashboard, users experienced the technology's core strength: transforming raw data into meaningful, real-world context.

The success of the Johns Hopkins dashboard serves as a model for how other organizations can use GIS to effectively collect, process, and share data that is comprehensive, trusted, and easily understood.

STEP 5

GROW

EXPAND CAPACITY AND SKILLS FOR ONGOING GROWTH IN GIS USE TO MAXIMIZE INVESTMENT IN THE TECHNOLOGY ACROSS YOUR ORGANIZATION

Building on a solid foundation, organizations accelerate GIS-driven business outcomes through continuous learning and cross-functional collaboration.

GIS is constantly evolving, offering new advancements and products for problem-solving. The people using the technology need to evolve their skills, too. To make the most of GIS capabilities and a geospatial strategy, GIS leaders should advocate for ongoing training. That training produces dividends: Trained staff go on to train others in the organization. In the case of one large metropolitan government, the creation of GIS user groups within the IT department led to a self-service mapping initiative. Across the organization, staff can now create, access, and share GIS dashboards and maps.

When growing a GIS program, consider asking the following key questions: What gaps in GIS skills and knowledge exist? Who would most benefit the organization through additional training? Is our geospatial strategy aligned with our organization's recruitment and human resources efforts?

Targeted Training, Focused Results

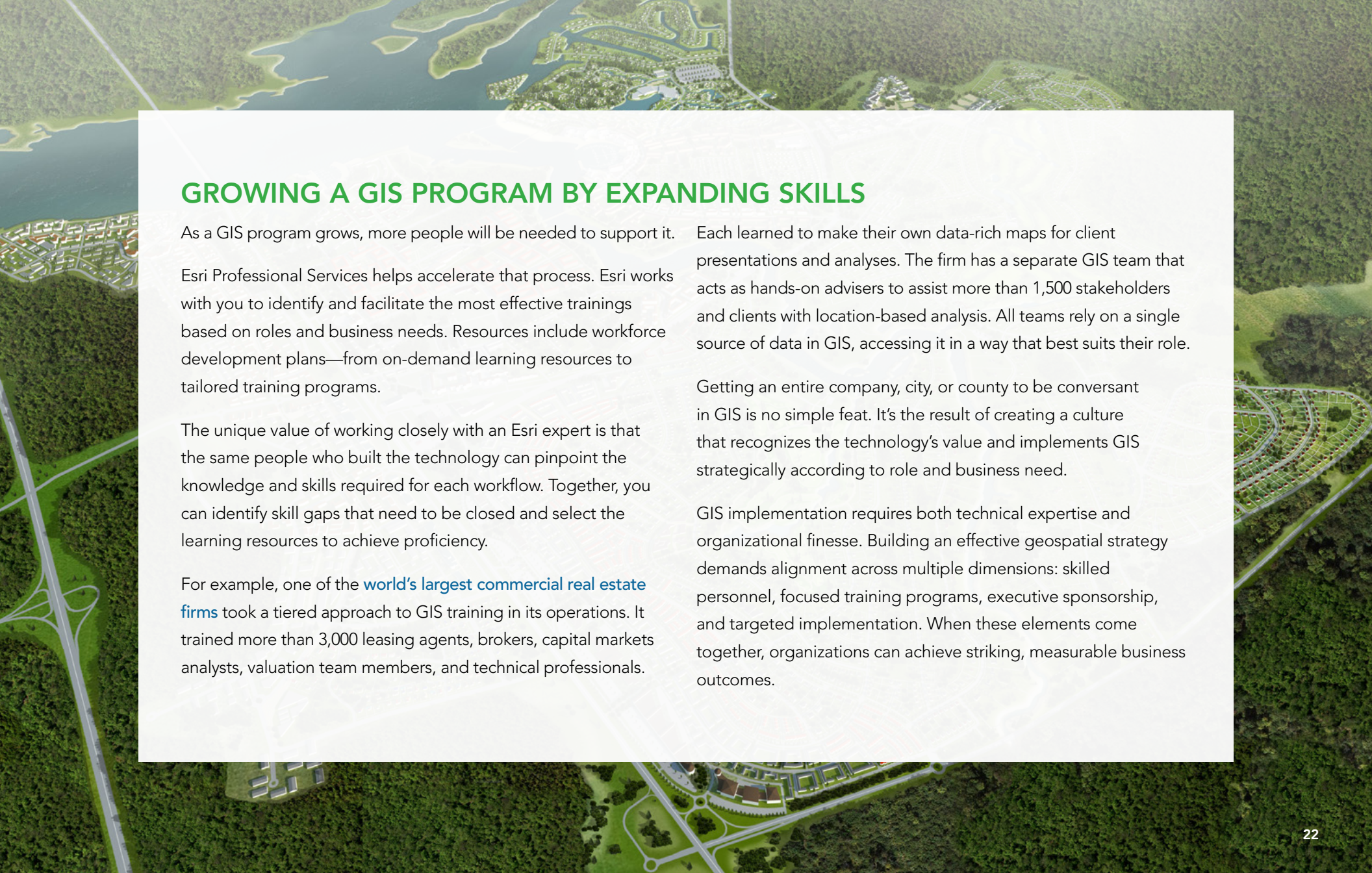
It's important to focus training on the people or departments that will have the greatest impact. As the CTO of Riverside County said: "Our approach on this is not [to] build Noah's ark. It's to build small boats to take [animals] two by two until we get everyone to safety." Through incremental GIS efforts, the county eventually connected data sharing across 42 departments. The result is better services being provided to the county's most vulnerable residents. This aligned with the county's mission to put people first; lead with outcomes; and invest in targeted impacts, including its workforce.

As part of a geospatial strategy, organizations often work with their Esri training consultant to create a workforce development plan. The plan defines training for specific roles and outlines certification attainment goals tied to business needs, validating the knowledge and skills to be gained. Training and certification should be followed up with discussions around professional development and career advancement.

In one case, an architecture, engineering, and construction (AEC) firm implemented a training plan that led to tangible revenue growth, prompting the CEO to designate location intelligence as a corporate priority. Recognizing the value, the CEO recommended that everyone in the organization earn GIS technical certifications and apply what they learn to their work. That upskilling grew the company's business even further.

When GIS wins are well-documented and communicated, they help justify growth. One GIS project saved a major clothing company 20 percent in shipping costs. That led others in the company and its retail customers to seek out more location-based insights.

Monitoring, measuring, and making note of a GIS program's return on investment are integral to growth. It's important to document wins beyond anecdotes, highlighting the GIS maps or analysis, how they helped, and how GIS could provide further insights.



GROWING A GIS PROGRAM BY EXPANDING SKILLS

As a GIS program grows, more people will be needed to support it.

Esri Professional Services helps accelerate that process. Esri works with you to identify and facilitate the most effective trainings based on roles and business needs. Resources include workforce development plans—from on-demand learning resources to tailored training programs.

The unique value of working closely with an Esri expert is that the same people who built the technology can pinpoint the knowledge and skills required for each workflow. Together, you can identify skill gaps that need to be closed and select the learning resources to achieve proficiency.

For example, one of the world's largest commercial real estate firms took a tiered approach to GIS training in its operations. It trained more than 3,000 leasing agents, brokers, capital markets analysts, valuation team members, and technical professionals. Each learned to make their own data-rich maps for client presentations and analyses. The firm has a separate GIS team that acts as hands-on advisers to assist more than 1,500 stakeholders and clients with location-based analysis. All teams rely on a single source of data in GIS, accessing it in a way that best suits their role.

Getting an entire company, city, or county to be conversant in GIS is no simple feat. It's the result of creating a culture that recognizes the technology's value and implements GIS strategically according to role and business need.

GIS implementation requires both technical expertise and organizational finesse. Building an effective geospatial strategy demands alignment across multiple dimensions: skilled personnel, focused training programs, executive sponsorship, and targeted implementation. When these elements come together, organizations can achieve striking, measurable business outcomes.

CONCLUSION

Geographically minded leaders in business and government are seeing the leap every organization will ultimately need to take.

That leap is to adopt a geographic approach to decision-making at every level. It's about asking questions that can only be answered by considering location:

- Who are our customers or residents, and where do we reach them?
- How can we be more efficient in how we use energy and other resources?
- How do we trace every step in the product life cycle to meet standards for quality, transparency, and sustainability?
- How do we quickly and accurately respond to an emergency?

The leap involves thinking of geography as much more than dots on a map—more than the locations of people, assets, and operations. Geography answers questions about your whole business. You use geography, in fact, to operate your business.

Following the five-part process to a geospatial strategy will ensure that your organization makes the most of its investment in geography and GIS to plan, organize, innovate, cultivate, and grow.

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