



# A SYSTEM OF ENGAGEMENT FOR AIRPORTS

A New Way to Manage Complexity with Location Intelligence





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Airport managers find themselves at the center of a rapidly changing storm. Between growing passenger volumes, a dynamic regulatory environment, the maintenance and expansion of aging infrastructure, increased security concerns, and the constant need to grow revenues, the considerations of airport management can be staggering.

Increasingly, airports are becoming 24-hour, real-time decision-making environments. As a result, many airports are recognizing the need for a comprehensive digital transformation strategy to meet these challenges and to thrive in a highly competitive environment. And that is why smart airports are increasingly turning to the power of information

and a location intelligence strategy to inform better decision-making. Geographic information system (GIS) technology allows airport managers to bring information together from across their organizations to improve their operations, their performance, and ultimately their bottom line.

This industry prospectus outlines the characteristics of smart airports as they face the challenges of digital transformation.

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DIGITAL TRANSFORMATION IN AIRPORTS

DIGITAL RISK MANAGEMENT

ACCESS TO INFORMATION

LEVERAGE EXISTING TECHNOLOGY

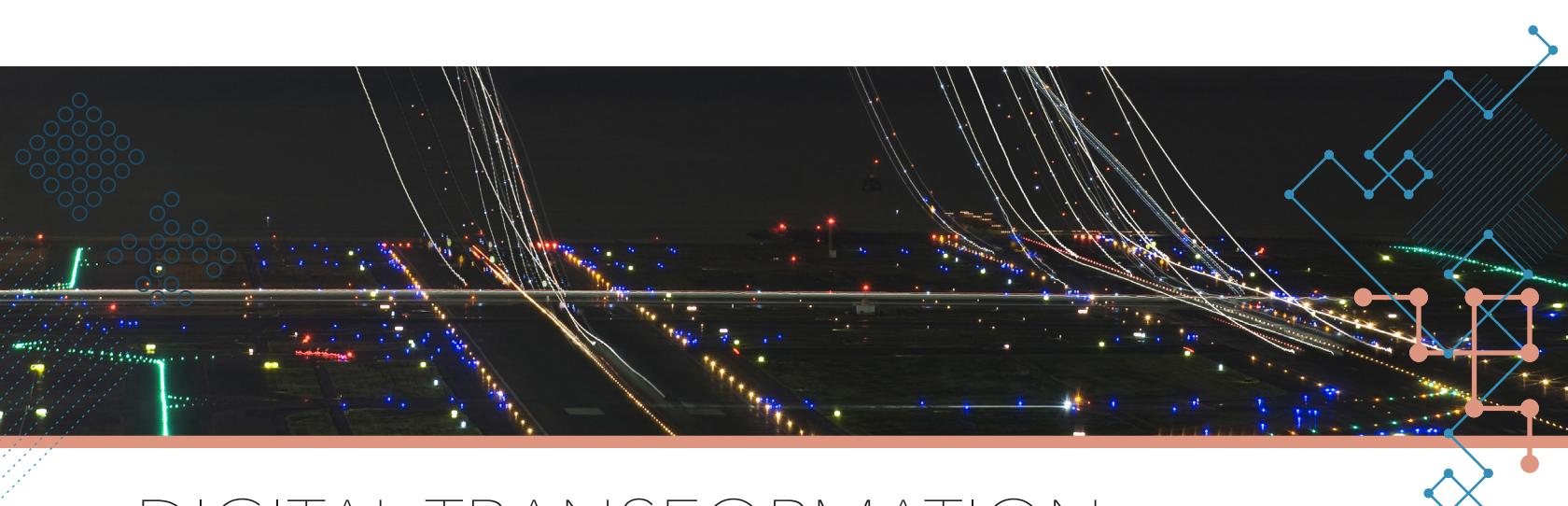
SIMPLE, USER-FOCUSSED APPLICATIONS

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# DIGITAL TRANSFORMATION IN AIRPORTS

As one analyst remarked, "Just about every modern organization is scrambling to harness the potential of digital technology to get a competitive edge," and airports are no different. Given the rapidly changing environment most airports find themselves in, airport professionals understand the need to leverage new technologies to ensure safety and security, improve performance, enhance the customer experience, and achieve greater efficiencies to reduce costs and improve revenue generation.

As a result, the role of a digital information infrastructure becomes the foundation for sharing real-time data across divisions and for gaining airport-wide insights to drive better and more effective decision-making.

At the same time, it is easy to become overwhelmed with the sheer number of technology choices and strategies for achieving a successful digital infrastructure implementation. While what follows is not meant to address every one of these issues, it is designed to highlight a set of key strategies and characteristics that define many successful airport digital transformations.

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# DIGITAL RISK MANAGEMENT

While many senior airport executives may be convinced of the need for digital transformation, they are also faced with the dauntingly high failure rates of many such efforts among large organizations. And while there are many reasons for some of these failures, following some key strategies can greatly increase the rate of successful technology adoption.

First, it is important to understand that a digital transformation is more usefully understood as the process by which organizations leverage technology to more effectively improve their performance and to better achieve their mission goals. Understood in this way, it really is business transformation through the application of technology and involves redefining the interaction of people, processes, and technology, often with technology being the final piece of the equation.

Second, a successful digital transformation strategy starts with a careful understanding of the problems to be solved, a thorough comprehension of the existing workflows and how they can be transformed, and a clear plan for achieving the objectives. Following a structured planning process can help ensure that success of the agency's goals will be maximized.

And finally, the importance of focusing on the key priorities of the airport—and closely aligning the digital strategy with those goals—cannot be overstated. With the wealth of technology choices and the difficulty of bringing about cultural changes within an airport, having a clear and strategic focus is critical.

What follows are key characteristics and concepts of smart airports as they meet the digital challenge.

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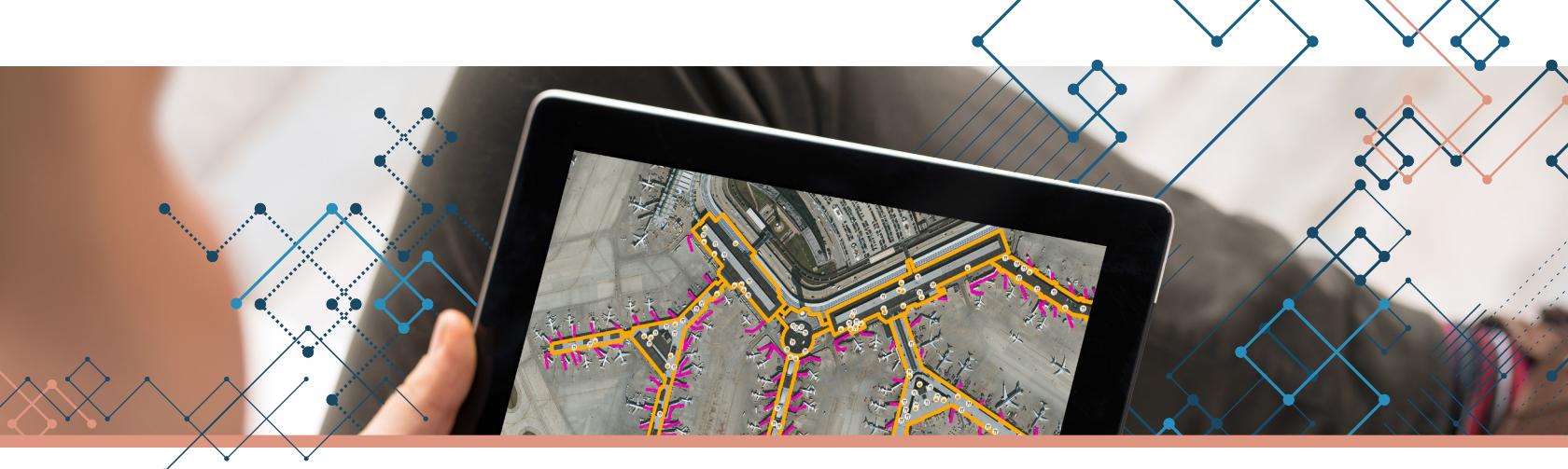
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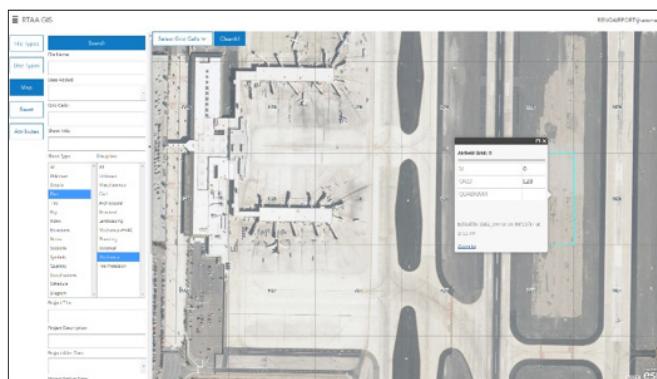
# ACCESS TO INFORMATION

A central component of a successful information architecture is that everyone within an organization must be able to access the information they need to more effectively carry out their daily tasks. In most organizations, information is often siloed and not easily shared across their departments. But creating an effective information architecture requires the ability to bring together information from these various silos to support more collaboration and effective decision making.

So first, there should be a single location for users (with appropriate permissions) to access authoritative data, using any device at any time. The core principle is that the ownership and stewardship of the data should remain with the group responsible for collecting and maintaining the data, but the data should be available from an easy-to-access site. And anyone should be able to get to the information they need with no more than three clicks from any device.

*"The implementation and application of GIS at the organization will improve the overall business process by connecting departments and making information more accessible. Ultimately, this will allow us to serve our customers and stakeholders better than ever before."*

—Marily Mora, President and CEO at Reno-Tahoe Airport Authority



Reno-Tahoe is delivering operational efficiency with GIS.

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# LEVERAGE EXISTING TECHNOLOGY

Most airports already have a large number of technology investments and management systems that contain critical data and information. The problem is that the data is not shared across their organizations in ways that can be used for more effective decision-making. GIS is a perfectly suited technology to leverage more from your existing data systems. Because almost all data in an airport has a location component, GIS can serve as the denominator between different datasets, allowing you to maximize the value of your data.

The goal is not to build new, large, complex systems but rather to leverage the data that you already have and to make it much more widely accessible. Fundamental is the notion that data should be unlocked and made widely available based on user credentials. Largely through creating open APIs between existing airport management systems, bringing the data—including real-time data—into a common location brings new levels of control into a complex environment.



*"But what I can do is prove to you that we're more efficient, we're responding quicker, and that we're basically optimizing our resources through the fact that we have all these different entities . . . sitting together in a single location."*

—Thomas Romig, Head of Operations Control and Development at Geneva Airport

To learn how Geneva Airport is saving millions, visit [go.esri.com/Geneva-Airport](http://go.esri.com/Geneva-Airport)

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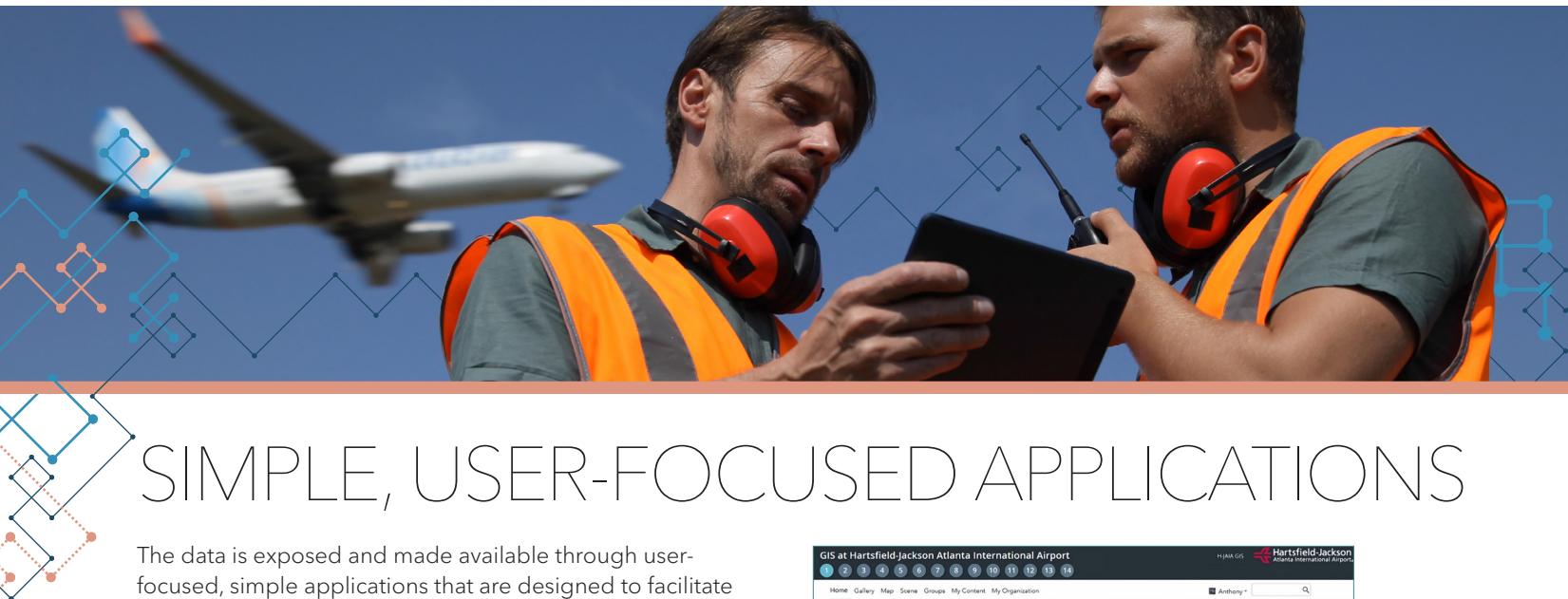
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# SIMPLE, USER-FOCUSED APPLICATIONS

The data is exposed and made available through user-focused, simple applications that are designed to facilitate the daily workflow of the various users. What we call a system of engagement creates targeted information products that are designed to provide data, maps, and apps to individual business units, allowing them to collaborate and bring the right information to their analysis and work. Esri's various applications are often connected to other applications, such that larger, complex workflows can be supported by a series of smaller, focused applications.

## User Story: Atlanta Hartsfield Airport

Discover how Web GIS delivers safety and efficiency to Atlanta International Airport.

To learn more, visit [go.esri.com/Atlanta-Hartsfield](http://go.esri.com/Atlanta-Hartsfield).



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# TAILORED APPLICATIONS

Another key concept is that the user applications should be designed for very specific workflows and the individual users. For example, operations and maintenance staff who are conducting airport safety inspections for Airport Certification need an application that is very simple and helps them efficiently collect the information, which is seamlessly updated in the corporate database. For the field personnel, a simple configuration of Esri's Survey123 for ArcGIS helps field crews quickly collect the information they need (including photos) and move on.

Meanwhile, supervisors do not need the field collection application but rather a dashboard that allows them to monitor progress. So a tailored application is configured for supervisors that gives them a real-time view of field progress and can generate any needed reports.

## User Story: Dublin Airport

Learn how the use of ArcGIS at Dublin Airport has created significant time savings by making it easier for teams to collect, share, understand, and act on new information.

To learn more, visit [go.esri.com/Dublin-Airport](http://go.esri.com/Dublin-Airport).



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# SUSTAINABLE TECHNOLOGY ENVIRONMENT

Because the focus of a system of engagement is to empower everyone within an organization with the relevant data and information they need for their daily workflows, the system is designed to create a sustainable technology environment that provides for continual innovation.

The design and build of the technology environment are driven entirely by user needs. Once it starts enabling staff with the information and targeted applications designed to support their daily workflows, it becomes a continual process of refinement and improvement. The system of engagement helps redefine the way in which people are connected to information, with the goal of increasing business efficiency and performance.

## User Story: Los Angeles International Airport

"If we shut down an elevator at a certain location, what else is going to be impacted at that location because of the shutdown? How can the passengers get through a certain route that is also under construction at the same time?

*"GIS is a critical part of our logistics management."*

—Don Chinery, Program Controls Manager for Los Angeles World Airports

To learn more, visit [go.esri.com/LAX](http://go.esri.com/LAX).

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# THE ADVANTAGES OF OFF-THE-SHELF TECHNOLOGY

A final characteristic of a smart airport is the use of off-the-shelf technology and reliance on configuration rather than customization as much as possible. With off-the-shelf technology, it is the responsibility of the vendors to ensure that each version of their software has backward and forward compatibility and interoperability with other platform technologies and does not need a significant rewrite to integrate with existing IT architectures. This represents huge savings to IT budgets, particularly as platforms increasingly move to the cloud.

Esri's system of engagement is designed to reduce the risk of failure—relying on configurable, off-the-shelf technology (the ArcGIS platform) as much as possible.

Esri has a large number of prebuilt templates and applications that are designed to allow for a quick implementation pattern, with simple configuration rather than custom coding. Covering everything from mobile workflows, operational awareness, and business dashboards to constituent engagement applications, these templates and applications are designed for easy configuration and simple implementation.

## User Story: Las Vegas McCarran

Las Vegas McCarran International Airport moves more than 48 million passengers per year. The airport has built a variety of focused GIS applications to streamline day-to-day operations.

To explore more, visit [go.esri.com/Las-Vegas-McCarran](http://go.esri.com/Las-Vegas-McCarran).

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# TAKE YOUR AIRPORT TO NEW HEIGHTS WITH ESRI

With the power of location, your organization can take the steps toward becoming a smart airport. Esri's ArcGIS platform is a full software solution—with mobile, desktop, server, and online components—working to bring all your business systems into one dynamic information engine. Understand your business data through information-driven maps and spatial analysis. See where you excel, and assess where you can improve performance.

## Get Started Today

Creating your own system of engagement is possible.

For more information, visit  
[go.esri.com/smart-airports](http://go.esri.com/smart-airports).

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