LOCATION INTELLIGENCE for

TELECOMMUNICATIONS





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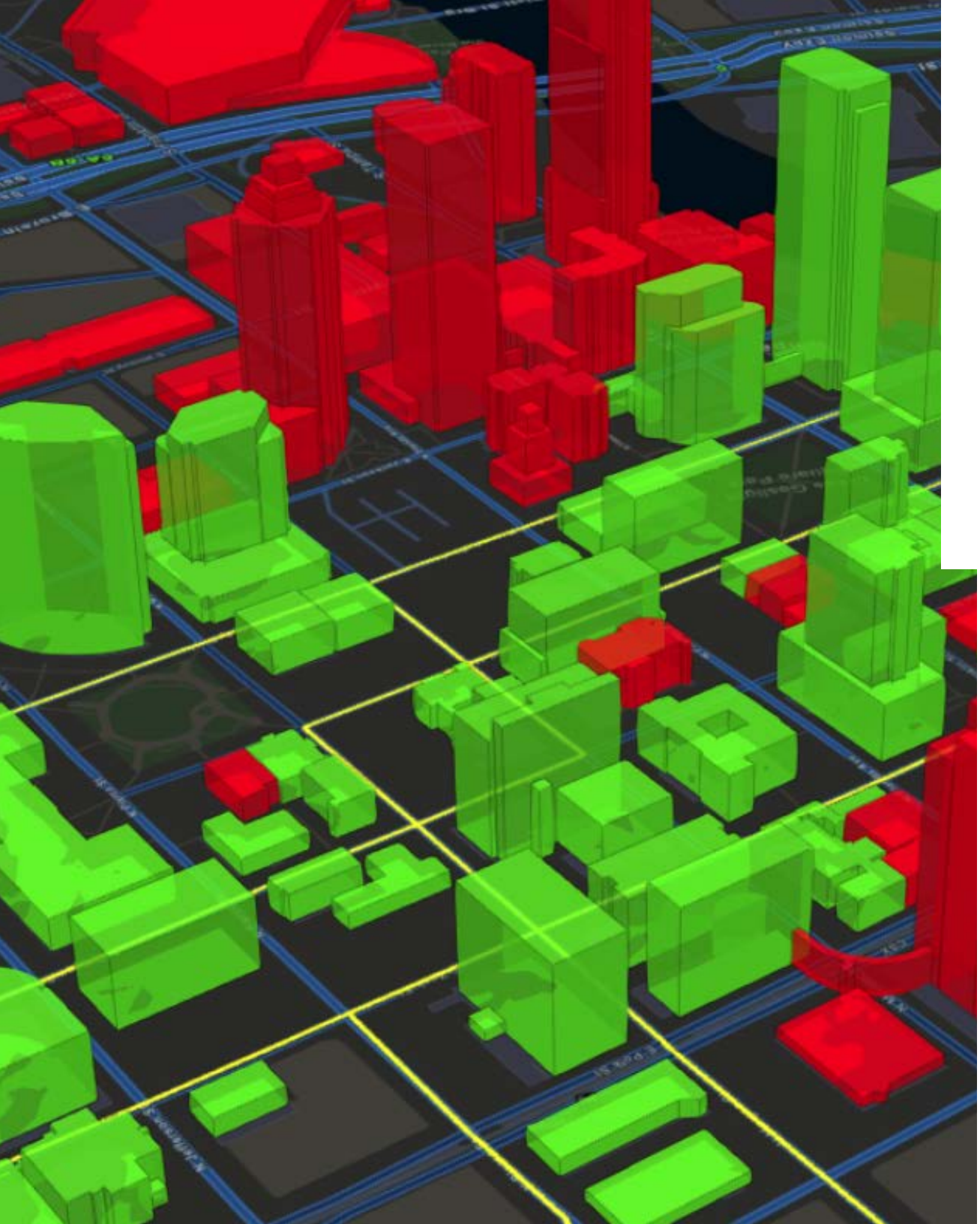
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"The return on investment is incredible, and I can tell you without hesitation that ArcGIS has been the most successful implementation that I have seen in my 35 years in the industry."

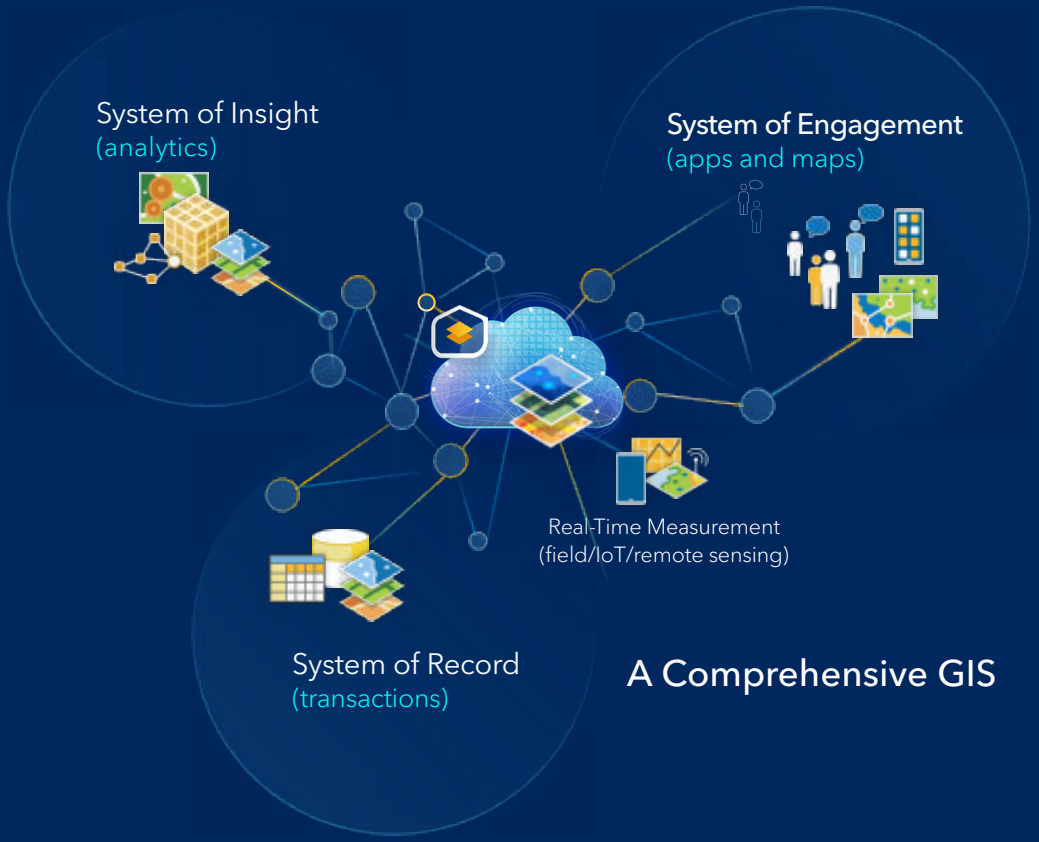
– Sid Blackwelder
Chief Executive Information Operations, HTC

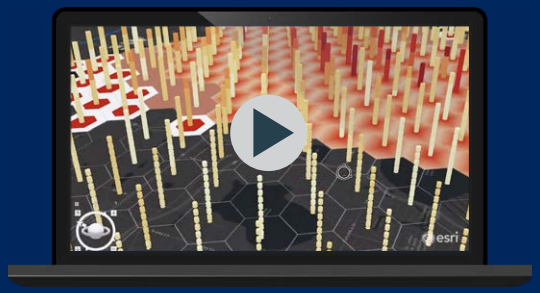


INTRODUCTION

Digitally transforming telecommunications through location intelligence

Location intelligence is fundamental to all communication services—mobile and fixed, residential and enterprise. Esri's ArcGIS® technology is a comprehensive geographic information system (GIS) for telecommunications that empowers all aspects of an organization with geospatial infrastructure powered by the Esri® Geospatial Cloud to ArcGIS. ArcGIS offers a system of record, system of engagement, and system of insight that leverage the power of location intelligence to directly support planning and engineering, network operations and maintenance, customer service, sales and marketing, and IT. With ArcGIS, meet your organization's next generation network initiatives and digitally transform your business.





Everything in telecommunications happens somewhere. As the world leader in location technology, Esri provides the most advanced capabilities in the industry.

BUSINESS BENEFITS

A Comprehensive GIS—More than Making Maps

Changes in the telecom environment and the explosion of data demand vastly better ways of managing, examining, and communicating telecom information.

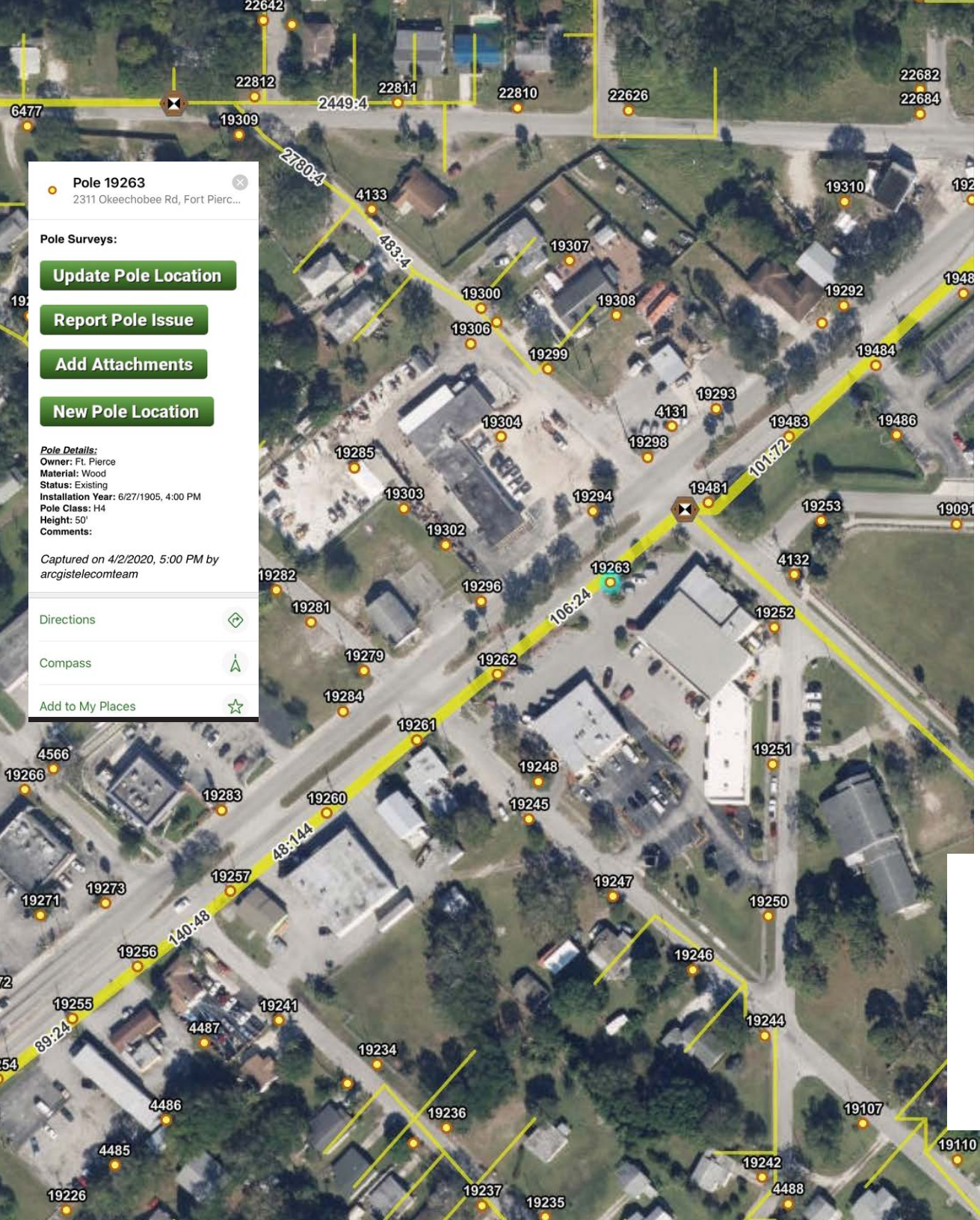
ArcGIS is a comprehensive GIS, meaning it contains all the elements needed to meet telecom challenges, not just make conventional maps faster. It maintains key information, analyzing and distributing it to everyone that needs business intelligence.

ArcGIS does things traditional mapping GIS can't touch. It employs an unparalleled data model and consumes most any form of external data. The rich data supports out-of-the-box analytics and the latest artificial intelligence (AI) and machine learning tools. The results are easily exploited with engaging apps personalized to each user's role. They provide focused capabilities and align to how people work today.

These capabilities create a seamless experience when using the following systems needed to thrive:

- System of record—Data management and integration
- System of engagement—Sharing, collaboration, and dissemination
- System of insight—Analytics, models, and data exploration
- Real-Time Internet of Things (IoT)—Measurement and status
- Location services—Developer tools for integration and customization

The industry is asking for new digital tools that show the complete picture and provide powerful insights—insights that include exceptional visualization on any device, anywhere, at any time. As the requirements for GIS have evolved, so has ArcGIS. It delivers the power to increase effectiveness in every corner of the utility.



Planning and Engineering

Communication service providers (CSPs) need new tools to help them be more strategic in their planning and engineering; reduce time to market through remote engineering; and maintain better project operational awareness as they invest and build out 5G, DOCIS 4.0, software-defined networks (SDN), and expanded fiber to deliver next generation networks. Esri's ArcGIS technology provides the essential tools to identify market opportunities and assess existing capacity, helping decision-makers invest where they can maximize their return on investment (ROI). With ArcGIS you get one comprehensive real-time network view to manage network build-outs from planning to design to construction to as-built.

Maximize ROI on existing assets, and efficiently plan new networks.



Digital Twin *and* ***Connectivity***

ArcGIS models the entire network with spatially accurate data. It has the tools to model fiber, coax, wireless, and hybrid networks as they really are on the ground. ArcGIS offers connectivity modeling of assets in two and three dimensions, supporting best practices and industry standards.



Remote Engineering *and* ***Collaboration***

Reduce the number of engineering field visits by bringing the field to the engineer. By leveraging ArcGIS, CSPs are delivering field information directly to the engineer's desktop. It is now possible to remotely collect field data, develop designs, create final engineering documents, and submit permits with a minimum number of field visits.



Location Intelligence *and* ***Strategic Planning***

Whether CSPs are planning a greenfield area or upgrading networks in an existing service area, they need to evaluate revenue potential against legacy network capacity and capability. ArcGIS is ideally suited for this analysis, with optimized tools for big data geospatial analysis to visualize subscriber network behavior.



Network Operations and Maintenance

Optimizing network operations and maintenance is optimizing not only communication networks but also the people, processes, and systems that maintain and manage telecom networks. Esri's ArcGIS technology can help telecom organizations and CSPs optimize their resources using location intelligence and GIS technology. ArcGIS unifies OSS/BSS through a common understanding of location and maps, while enhancing situational awareness through real-time NetOps and field operations.

Get insights and capabilities beyond the location of assets.



OSS/BSS Integration

With all of the location information within telecommunications, a geospatial system can integrate OSS and BSS with a common set of maps and geospatial tools. ArcGIS is open and extensible, allowing you to integrate all of your systems with your GIS and improving network operations and spatial awareness.



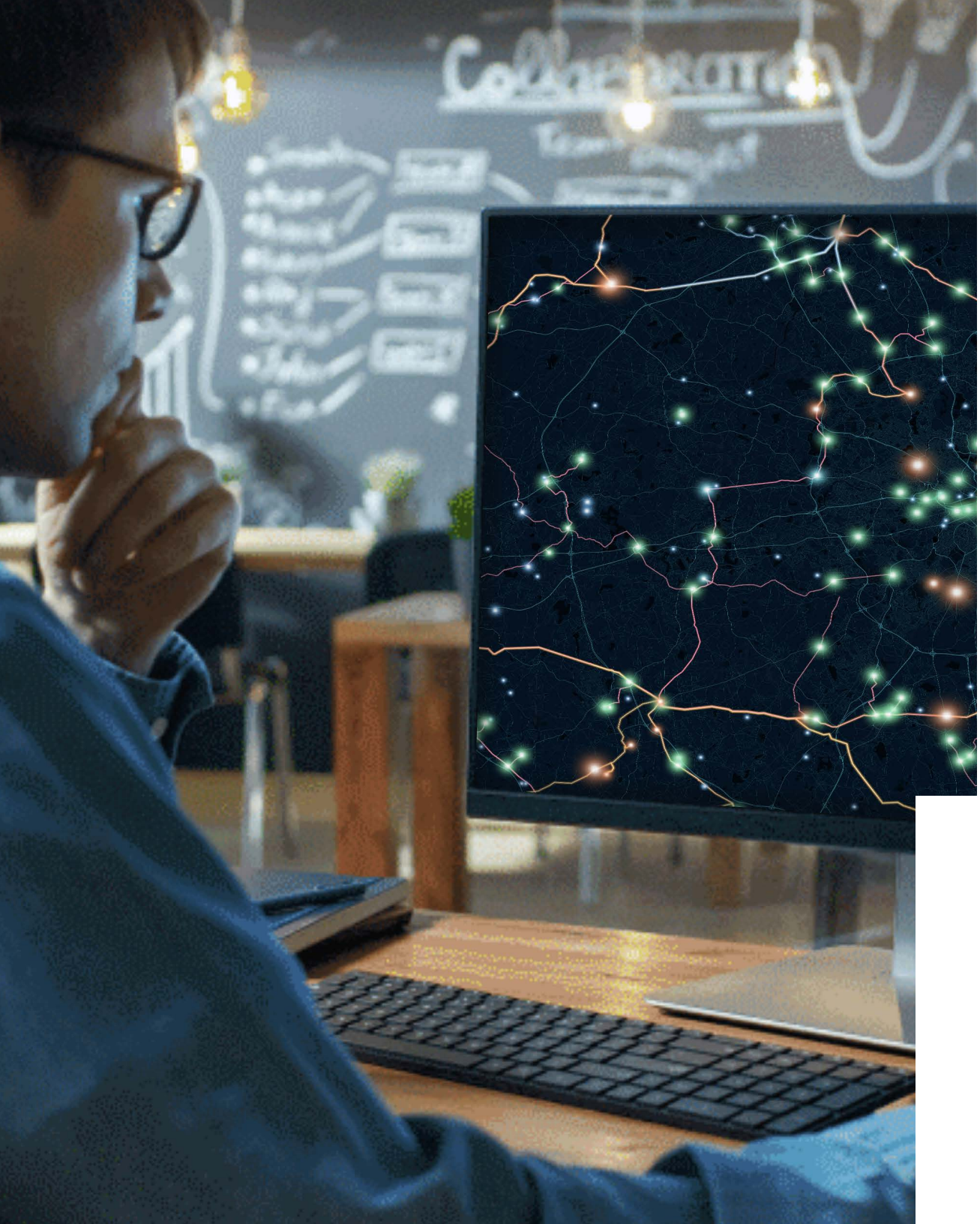
Real-Time Situational Awareness

ArcGIS allows you to configure real-time network operation views through web-based dashboards, analyze network capacity using location analytics, and provide service restoration times to your customers through outage viewer maps.



Resource and Network Optimization

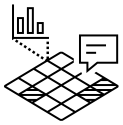
To reduce costs, you need to optimize network assets, people, and processes. ArcGIS maximizes network resources through network suitability analysis for new wireless or fixed-line service planning. Save time and costs by optimizing field technician territories using location analytics and by improving customer satisfaction with mobile apps for field technicians.



Sales and Marketing

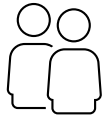
Communication service providers are always looking for ways to increase revenues. Revenue growth starts with understanding market demand and performing sales analytics. Next, it moves into ensuring a successful customer journey by accurately qualifying a prospect and performing service fulfillment. Finally, it goes into retaining and upselling the customer for continued revenue streams. Esri's ArcGIS technology can help CSPs increase revenue by leveraging spatial analytics with existing marketing and sales analysis to locate high-growth areas and upsell opportunities. ArcGIS solutions can enable presales engineers and customer sales representatives (CSRs) to qualify customers in far less time than before. ArcGIS provides geospatial tools and maps to the organization for improving customer retention.

Increase your top-line revenues with location intelligence and GIS.



Coverage *and* ***Market Demand***

Understanding market demand allows for the right product or service to be offered to the right customer at the right time. Improve market and revenue forecasts with geospatial insights provided by ArcGIS tools and maps. ArcGIS enhances geotargeted marketing campaigns with location analytics and rich demographic datasets.



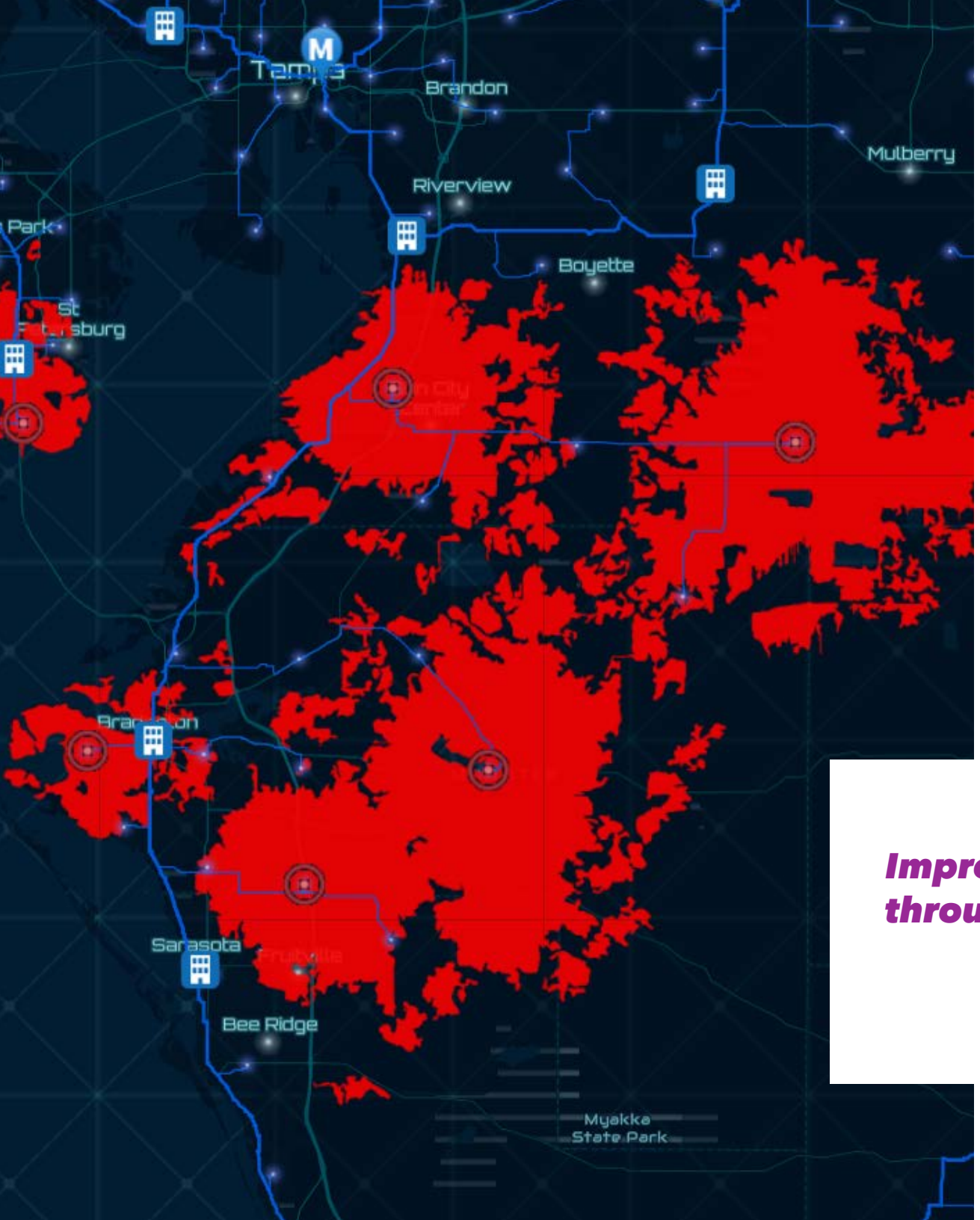
Community *and* ***Customer Engagement***

Reducing churn and upselling customers drives revenue growth. ArcGIS brings location information from across the organization and puts it into the hands of the sales and marketing teams so that they can make the most accurate decisions possible. Boost customer engagement and improve the customer journey with ArcGIS. ArcGIS allows CSPs to geographically monitor NPS and customer sentiment and better understand the demographic characteristics of their customers.



Business Intelligence

Location analytics supports sales analytics in many ways—from retail analysis to customer 360 analysis to service qualification analysis. ArcGIS offers hundreds of ready-to-use spatial analytics tools to geographically analyze customer data and qualify customers faster. ArcGIS offers business intelligence apps for everyone from data scientists to analysts to management teams.



Customer Service

What's just as important as download speeds for today's telecom organizations? The answer is customer experience. Esri's ArcGIS technology can play an important role in helping a telecom organization improve its customer experience by refining its operations and maintenance. ArcGIS solutions can support faster disaster response, reduce network downtime, and support location-based customer sentiment analysis.

Improve customer service throughout the customer journey.



Communication *and* ***Engagement***

ArcGIS allows CSPs to share service information, coverage availability, and outage time to restoration through visual, easy-to-use maps. This can make it easy for customers to report locations of service issues and coverage holes while allowing management teams to visualize customer sentiments.



Geoenabled Customer Care

ArcGIS improves customer experience with geoenabled customer care. Easily visualize service availability, real-time customer locations, and network outages on web-based maps that integrate with customer experience management systems (CEMS).



Customer 360-Degree View

Location-based customer sentiment reporting and a 360-degree view of the customer can give customer service insight into the customer. Enrich your customer 360-degree database with demographics and location intelligence while leveraging GeoAI to help predict likelihood of customer churn.



Information Technology and New Services

Keeping up with competition and customer expectations means CSPs are having to digitally transform to become the telecom of the future. CSPs are turning to location intelligence and GIS to help them transform faster while giving them a competitive edge by leveraging location services and maps in new Internet of Things (IoT) products and services for smart X. ArcGIS provides a geospatial system approach to a comprehensive GIS for IT. ArcGIS enables innovative products and services through emerging technologies while supporting traditional lines of business as an enterprise system. Esri's location services and maps make IoT come to life.

Prepare for software-defined networks, and offer innovative services.



Authoritative Geospatial Data Management

Business intelligence analytics and smarter OSS/BSS are becoming critical needs for CSPs. The common denominator across the business is location and maps, and ArcGIS spatially enables other systems and brings business data together through an open web services architecture that is cloud ready.



Interoperable** and **Extensible System

While the requirements for GIS across the organization are growing, many GIS solutions are siloed architectures. ArcGIS is the only comprehensive GIS that brings location information, maps, and location analytics to anyone in the organization through an open, containerized, microservices architecture with APIs and SDKs to integrate and extend ArcGIS.



Innovative Digital Services** and **Offerings

The emergence of everything IoT is creating new opportunities for CSPs. New digital products and services for consumers, commercial organizations, and cities can be enhanced with the power of location intelligence and maps. ArcGIS offers an open and strong developer framework to build location services into your products and services, giving you a competitive edge.



Reliance Jio Infocomm Limited

Jio uses location intelligence to tune workflows for all phases of network implementation and marketing. With GIS, decision-makers at Jio use it to model and test the best sites to locate towers for optimum coverage. Jio operators use that same technology to coordinate materials for just-in-time deliveries and to dispatch crews for network construction when and where they are needed. This tight integration of tasks helped Jio quickly build its network and expand its customer base.

"We start with nothing more than a standard map. It gets enriched by adding how many customers we can reach, how many towers we need to build and connect, how much cable we need, and so forth—always keeping the *where* dimension in the picture."

— Milind Deshpande
Senior Vice President, Jio

HTC

To streamline internal communications, HTC decided to take information that once resided in multiple systems and make it accessible in one place—ArcGIS. With access to critical information in one location, employees started to directly pull what they needed. In addition, information was spatially enabled, enhancing visualization in ways not possible with tabular data.

"Esri's mapping capabilities allow us to take the wealth of data and combine it and connect it with the mapping capabilities to really paint the full picture of everything that needs to be considered. And that allows us to make more informed decisions, take a more strategic approach, and ultimately define what's going to be the best route."

— Jessica Strickland
Senior Marketing Coordinator, HTC



esri | THE SCIENCE OF WHERE®

Esri, the global market leader in geographic information system (GIS) software, location intelligence, and mapping, helps customers unlock the full potential of data to improve operational and business results.

Since 1969, Esri has helped customers unlock the full potential of data to improve operational and business results. Today, Esri software is deployed in more than 350,000 organizations including the world's largest cities, most national governments, 75 percent of Fortune 500 companies, and more than 7,000 colleges and universities. Esri engineers the most advanced solutions for digital transformation, the Internet of Things (IoT), and location analytics to inform the most authoritative maps in the world.

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Contact Esri

380 New York Street
Redlands, California
92373-8100 USA

1 800 447 9778
T 909 793 2853
F 909 793 5953

info@esri.com
esri.com

Offices worldwide
esri.com/locations

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