Location Intelligence for Field Operations

Optimise your mobile workforce for better, evidence based decision making

esri Ireland

THE SCIENCE OF WHERE™

Harnessing the Power of Location

Location is at the heart of field activities. It sounds like an obvious statement, but field management often either completely overlooks location or marginally takes advantage of it.

Field managers and workers are likely to make decisions faster and deliver better customer service if they can access location intelligence in the field. This e-book explains how geographic information system (GIS) technology and a suite of field mobility apps work together to improve performance in the field. Four case studies show how organisations incorporated apps into workflows and describe the returns they gained.

Organisations use GIS to capture, manage, analyse and display all forms of geographically referenced information and use focused field apps to improve field operations. Its ability to transform data into useful information has proved to be highly valuable to field operations managers in four operational areas: coordination, navigation, data collection and monitoring.

Learn more here

Field Operational Areas

Field operational areas coordination for exceptional customer care

Daily operations need to quickly adjust to changing conditions including last-minute requests, unexpected resource unavailability and delays. A geographic perspective allows you to easily see the location of the worker nearest the call and quickly assign that worker to respond. This level of flexibility results in exceptional customer service and compliance with service-level agreements.

Workforce for ArcGIS helps you quickly put resources where they are most needed.

Navigation for timely service

GIS does much more than map point A to point B. For instance, users can add other layers of information, such as private road networks and asset locations, to street maps. GIS apps combine this data and calculate optimised routes that fieldworkers see on their mobile devices, even when disconnected. GIS recalculates delivery windows in real time based on traffic conditions, so drivers can give an estimated time of arrival, which keeps customers happy. GIS is the route optimisation tool of choice for organisations whose reputation and success are defined by on-time delivery, supporting routing with high-quality street data and with the tools you need for complex problem solving.

Data collection for accurate information

Built-in GIS capabilities in mobile apps ensure that location information is included in the data. This capability extends to other business data submitted via inspections, incident reports, or any type of form entered into your system of record. Understanding the location where field activities happen is critical for historical analysis, QA/QC, regulatory compliance and coordination with other users.

Focused apps allow crews to capture, update and analyse data accurately. Fieldworkers use these apps to create surveys, capture the answers and analyse the results. Mobile apps provide fieldworkers with their organisation's maps, allowing them to locate assets and mark up the map with additional details. Drones offer an inexpensive way to capture field imagery, and by using a desktop app, drone-captured imagery can be easily turned into professional quality imagery products that you can use for mapping and analysis. Data generated by these apps can all be synced at the office and shared within the organisation, boosting data accuracy and optimising geospatial analysis.

Monitoring for fast analysis and response

It is difficult to manage what you can't see. GIS provides dashboards that enable real-time monitoring of events and key performance indicators (KPIs) so that you can make decisions at a glance. GIS-based dashboards show information as maps, charts, gauges and other understandable visualisations. Combined with real-time GIS analysis, GIS dashboards help organisations focus on specific information by revealing exceptions, trends and patterns that are relevant for decision-making.

GIS also supports tracking of field personnel. Managers and supervisors are able to view where workers are and where they have been through a mobile app that captures their location tracks. This helps them identify workers' last known locations, confirm the territory covered, and more effectively balance the allocation of workers to needs.

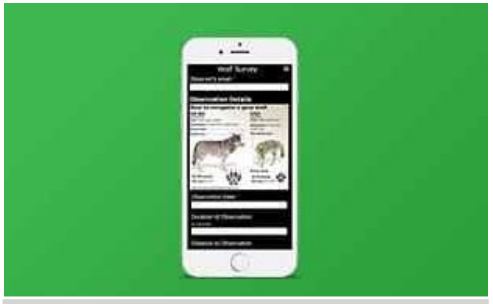
Operations Dashboard for ArcGIS helps users visualise and monitor data that is relevant to them. *Tracker for ArcGIS* enables monitoring of personnel to better manage what happens in the field activities.

Field Apps Available in the ArcGIS Platform

Select any of the boxes below to find out more about some of the most popular Esri field apps.

Collector for ArcGIS

Efficient, accurate data collection on smartphones or tablets replaces paper forms. Respond, record, work on- or offline and sync automatically.



Survey123 for ArcGIS

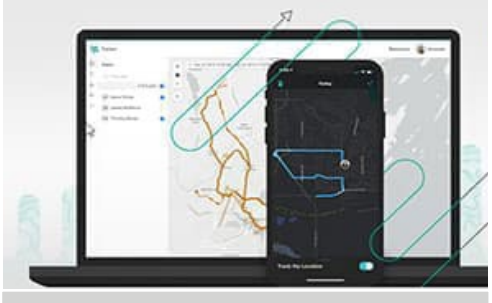
Use a form-based survey interface in a lightweight, intuitive app. In just a few clicks you can collect, manage and analyse survey results.

Workforce for ArcGIS

Staff and apps can work together. Sync with other apps for assignments, navigate them and collect data in one workflow on one mobile device.

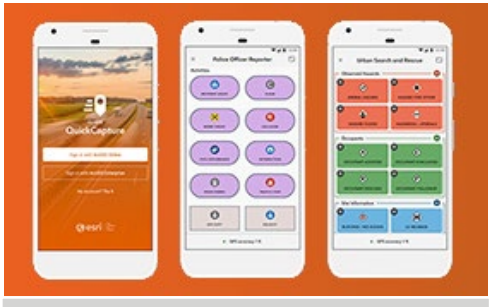
ArcGIS Dashboards

Present location-based analytics using interactive data dashboards. Add data feeds and integrate maps, charts, gauges, lists and more.



Tracker for ArcGIS

Enable field personnel to share where they are and where they have been. Efficiently allocate resources based on changing conditions in the field.



ArcGIS QuickCapture

ArcGIS QuickCapture is the fastest way to collect field observations. Record observations from a moving vehicle with the touch of a button.

Apps That Empower Employees With Data - 4Site

Accelerating the delivery of next generation fibre networks

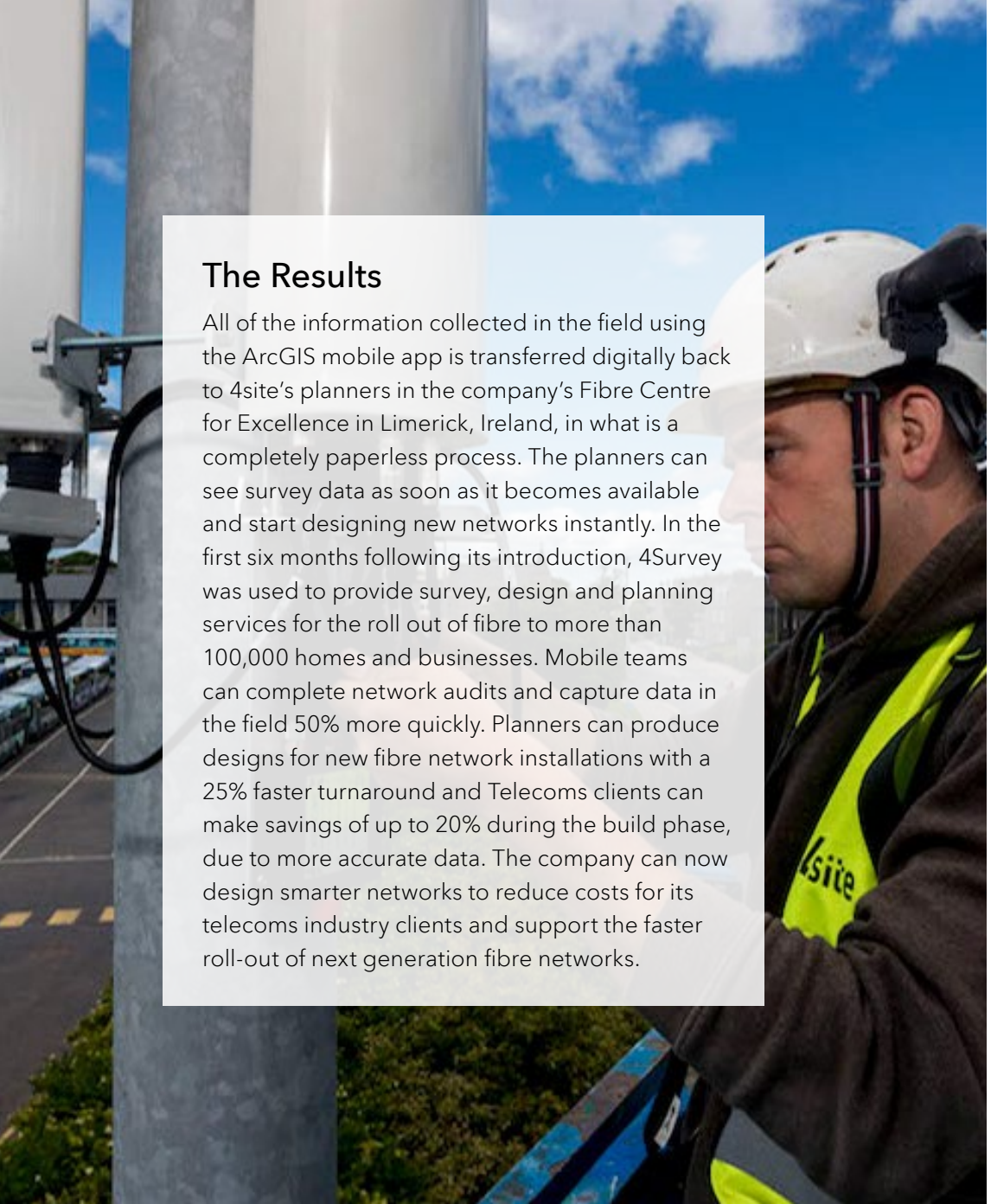
The Challenge

When telecoms companies roll out new fibre communications networks, the success and long-term profitability of the venture can hinge on the quality of the data collected at the very outset. For, if the data is incomplete or out of date, unforeseen issues can emerge that increase costs during the build phase and impede the efficient operation of the network for years to come.

For engineering solutions company 4Site, the traditional approach for collecting data to inform the installation of new fibre networks was a highly manual one, fraught with the potential for errors. Surveyors typically used printed maps, note pads, laptops and cameras to conduct surveys in the field up to three days a week and then spent around two days in the office transferring their findings to spreadsheets.

The Solution

4site identified an opportunity to streamline this survey process to not only improve the accuracy of the data collected, but also shorten the time required to share it. 4site use GIS and mobile field apps including Collector App for ArcGIS, as the foundation for a customised survey app and process. They were able to use products from the ArcGIS platform to develop a GIS-led survey workflow called 4Survey, the first of its kind in the fibre deployment industry. Now, 4site's mobile teams use smartphones and iPads to view, query and collect data in the field pertaining to existing and planned fibre networks. The 4Survey app allows them to complete audits guided by pre-set drop-down boxes, verify existing network features, take and upload images, validate network maps and add new information points with attributes.



The Results

All of the information collected in the field using the ArcGIS mobile app is transferred digitally back to 4site's planners in the company's Fibre Centre for Excellence in Limerick, Ireland, in what is a completely paperless process. The planners can see survey data as soon as it becomes available and start designing new networks instantly. In the first six months following its introduction, 4Survey was used to provide survey, design and planning services for the roll out of fibre to more than 100,000 homes and businesses. Mobile teams can complete network audits and capture data in the field 50% more quickly. Planners can produce designs for new fibre network installations with a 25% faster turnaround and Telecoms clients can make savings of up to 20% during the build phase, due to more accurate data. The company can now design smarter networks to reduce costs for its telecoms industry clients and support the faster roll-out of next generation fibre networks.

"4site's clients could reduce their build costs by up to 20%, which, depending on the infrastructure profile, could result in savings of millions of Euros."

Niall Looney, Operations Director
4Site

Apps That Navigate Success - P&O Ferries

Improving efficiencies and vessel turnaround times saving €250,000 per year

The Challenge

P&O Ferries operates in two routes on the Irish Sea from Dublin to Liverpool and Larne to Cairnryan. The company ships 170,000 units of roro freight - trailers which are designed to carry wheeled cargo, including cars, trucks and trailers – each year. To ensure the safe and seamless transport of freight, shipyard supervisors must oversee the daily management of load planning. This process involves organising the movement of loads to ensure maximum efficiency on shipping vessels. Supervisors must then issue instructions to tug drivers who fetch freight and place it on awaiting vessels. Prior to the introduction of ArcGIS's location technology, this process was a paper-based and time consuming task.

The Solution

Esri's ArcGIS Platform maps & apps gives users a real time overview of freight movement in the shipyard, improving accountability between drivers and management. For instance, the mobile functionality of the Workforce app enables tug drivers to receive individual tasks on their phone and grants supervisors the ability to view whether an action is ongoing or has been completed. The technology grants the ability to collate and analyse large volumes of data, enabling management to prepare loads and issue driver instructions ahead of time – improving efficiencies and allowing supervisors to concentrate on business-critical tasks.

The Results

P&O Ferries use of location technology to improve productivity, enhance operational traceability and reduce costs has replaced its manual, paper-based systems with a customised mobile, desktop and web-based application. The solution has drastically improved business efficiencies in the shipyard, reducing vessel turnaround time by ten minutes. Realtime information has improved accountability between supervisors and drivers, and enabled better decision about load planning, saving the shipping company €250,000 per year.

Watch our case study to see how GIS has transformed how P&O Ferries operate as a business

"Esri's digital mapping solution has transformed our day-to-day operations. We use it seventeen hours a day and have been amazed at how easy it is to use."

Noel Byrne, Port Manager
P&O Ferries

Apps That Co-Ordinate Field Work - KN Circet

Digitally transforming operations for fieldworkers helping with faster broadband rollout

The Challenge

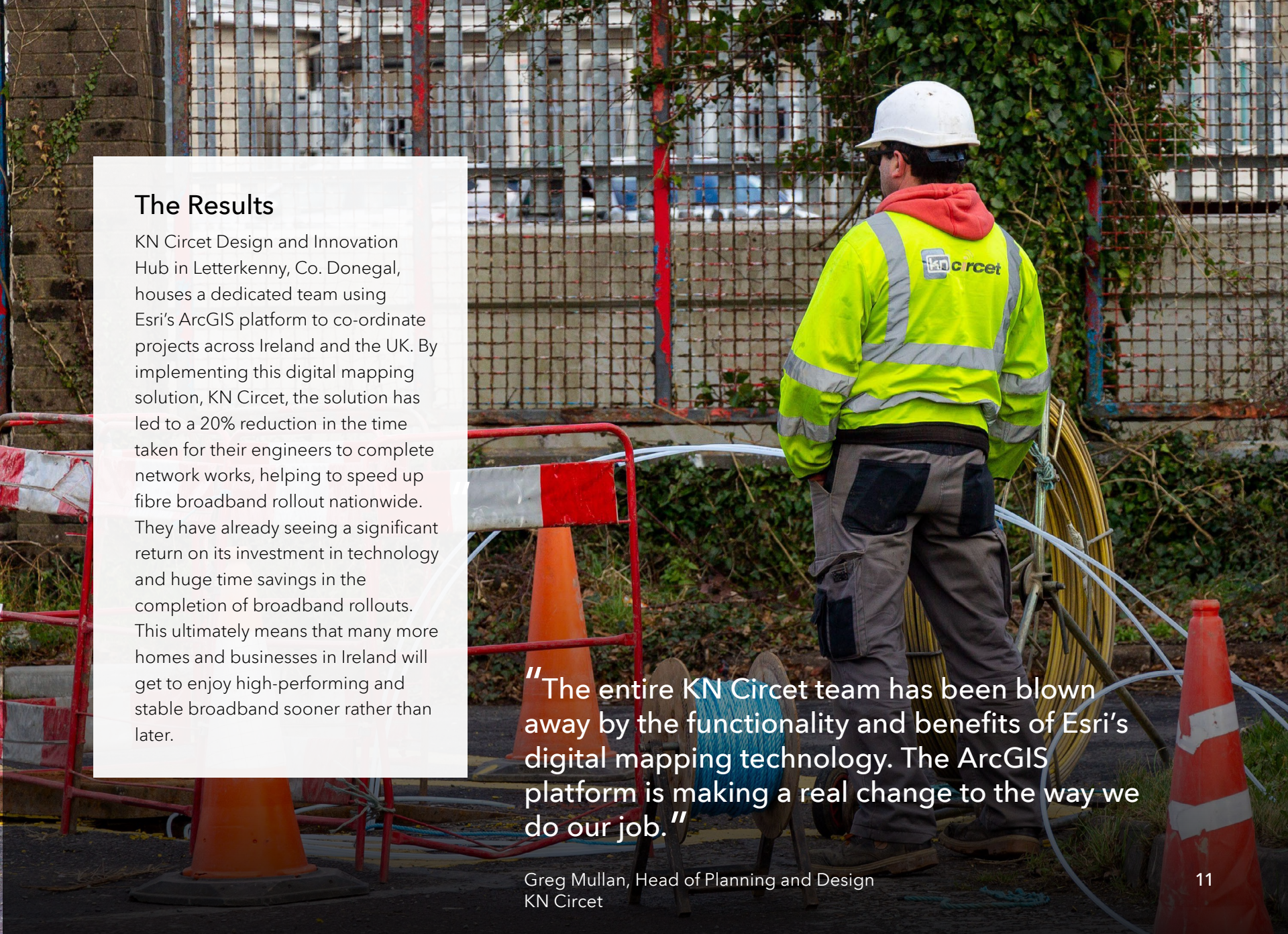
Irish homes are switching rapidly to fibre broadband subscriptions, the number of home fibre broadband subscriptions rose by 92pc in the last year to 144,000, three times more than fixed wireless connections. The demand for efficient fibre roll-out is huge. KN Group recently merged with French company Circet and, as KN Circet, is now one of the largest telecoms contractors in Europe. The company is involved in a number of broadband projects across Ireland, including the National Broadband Plan, which will deliver fibre-to-the-building broadband to connect over half a million Irish homes and businesses with speeds of up to one gigabyte per second.

They have rolled out Esri's digital mapping technology across the organisation, to help manage and digitise the services it provides customers - including surveying, designing, building and maintaining new broadband networks. The technology is transforming KN Circet's business, moving the company away from paper-based processes to a single digital platform.

The Solution

Field-based teams can now use smartphones and tablets to log data on-site, with this information immediately available to view and act upon in KN Circet's Design and Innovation Hub. The application enables engineers to record each element of infrastructure upgrades and works with a high level of accuracy. KN Circet's customers can also receive real-time progress reports, through a view-only mode on the app.

This improved availability eliminates the costs associated with unnecessary administration tasks, such as the reduplication of data, and allows staff to make better informed and faster decisions. Safety is also greatly enhanced, as potential hazards encountered in the field can be flagged through the app. For example, teams can use the multiple network layers on the app to view the location of electrical power lines before beginning any excavations.



The Results

KN Circet Design and Innovation Hub in Letterkenny, Co. Donegal, houses a dedicated team using Esri's ArcGIS platform to co-ordinate projects across Ireland and the UK. By implementing this digital mapping solution, KN Circet, the solution has led to a 20% reduction in the time taken for their engineers to complete network works, helping to speed up fibre broadband rollout nationwide. They have already seeing a significant return on its investment in technology and huge time savings in the completion of broadband rollouts. This ultimately means that many more homes and businesses in Ireland will get to enjoy high-performing and stable broadband sooner rather than later.

"The entire KN Circet team has been blown away by the functionality and benefits of Esri's digital mapping technology. The ArcGIS platform is making a real change to the way we do our job."

Greg Mullan, Head of Planning and Design
KN Circet

Apps That Improve Efficiency - Dublin Airport

Dublin Airport Taking off on a journey to transform field operations and passenger experience

The Challenge

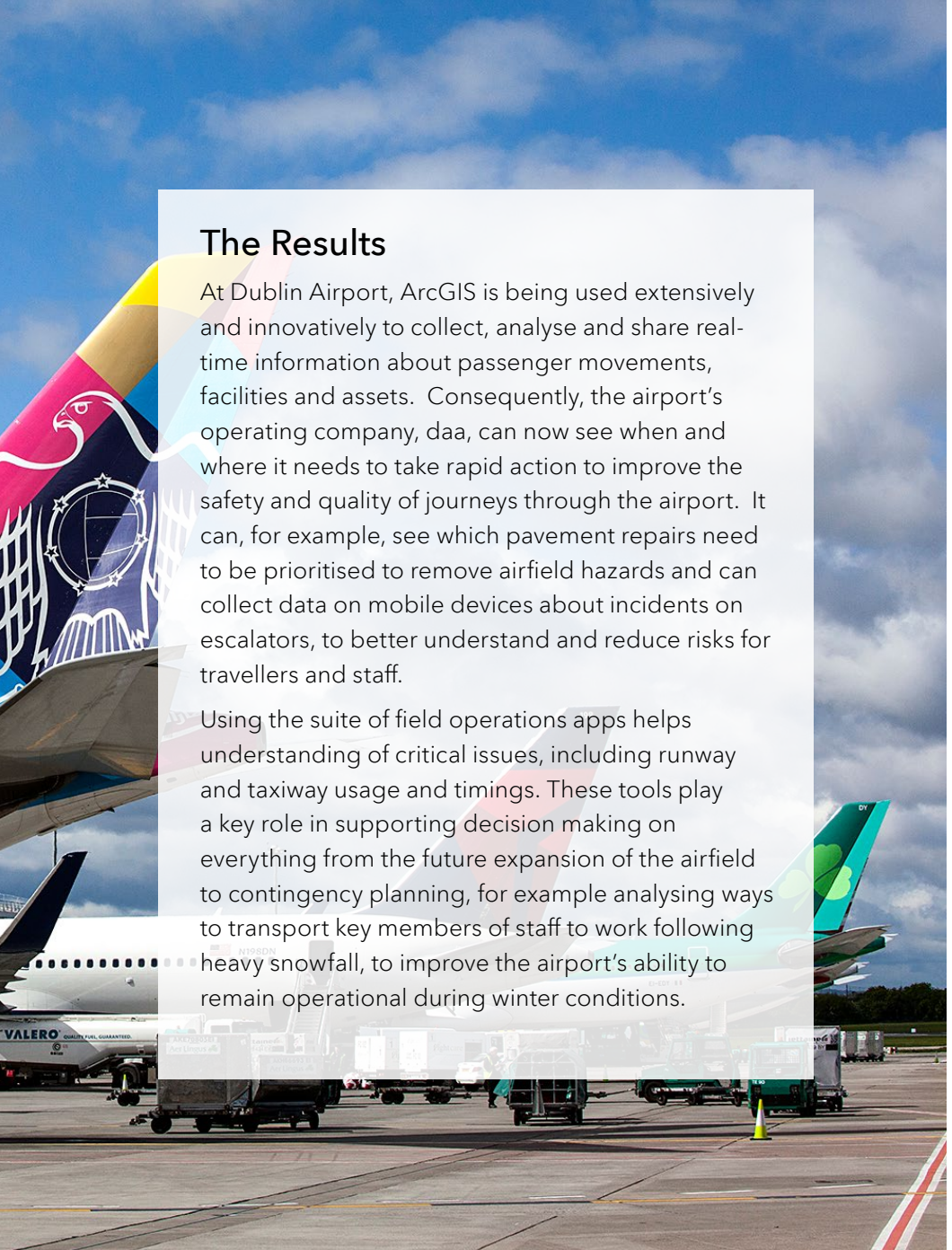
Airports accommodate millions of passengers every year, support tens of thousands of workers across diverse businesses and manage hundreds of daily aircraft movements. In such busy, complex and regulated environments, airport operators can only improve the passenger experience if they have clear and immediate insight into everything from the operation of baggage systems to the condition of runways.

Dublin Airport, operated by Dublin Airport Authority (daa), welcomes over 31.5 million passengers each year and handles more than 2,300 flights every week. To provide a safe and positive experience for passengers, the airport's employees need to work together to manage and maintain 35,000 assets, with a replacement value of €4 billion, as well as collect, share and analyse a vast amount of operational data.

The Solution

Dublin Airport uses geographic information system (GIS) solutions including mobile, desktop and web-based GIS applications to transform processes and build incremental business value. "By exploiting the full capabilities of the ArcGIS platform, enterprise-wide, we can now see where issues need to be addressed and how we can respond to them quickly to improve the experience passengers have when using Dublin Airport." Morgan Crumlish, Dublin Airport Spatial Data Manager.

Now, field-based employees use a range of ArcGIS mobile solutions to access, collect and upload information and photographs from mobile devices. Airfield inspectors use apps to check the condition of 1,700,000 m2 of airfield, while maintenance teams can access asset information and download repair manuals in the field, to help them rectify faults more quickly. Other airport workers use survey apps to record safety incidents, such as injuries to baggage handlers and collect all pertinent details in real-time, on their mobile devices.



The Results

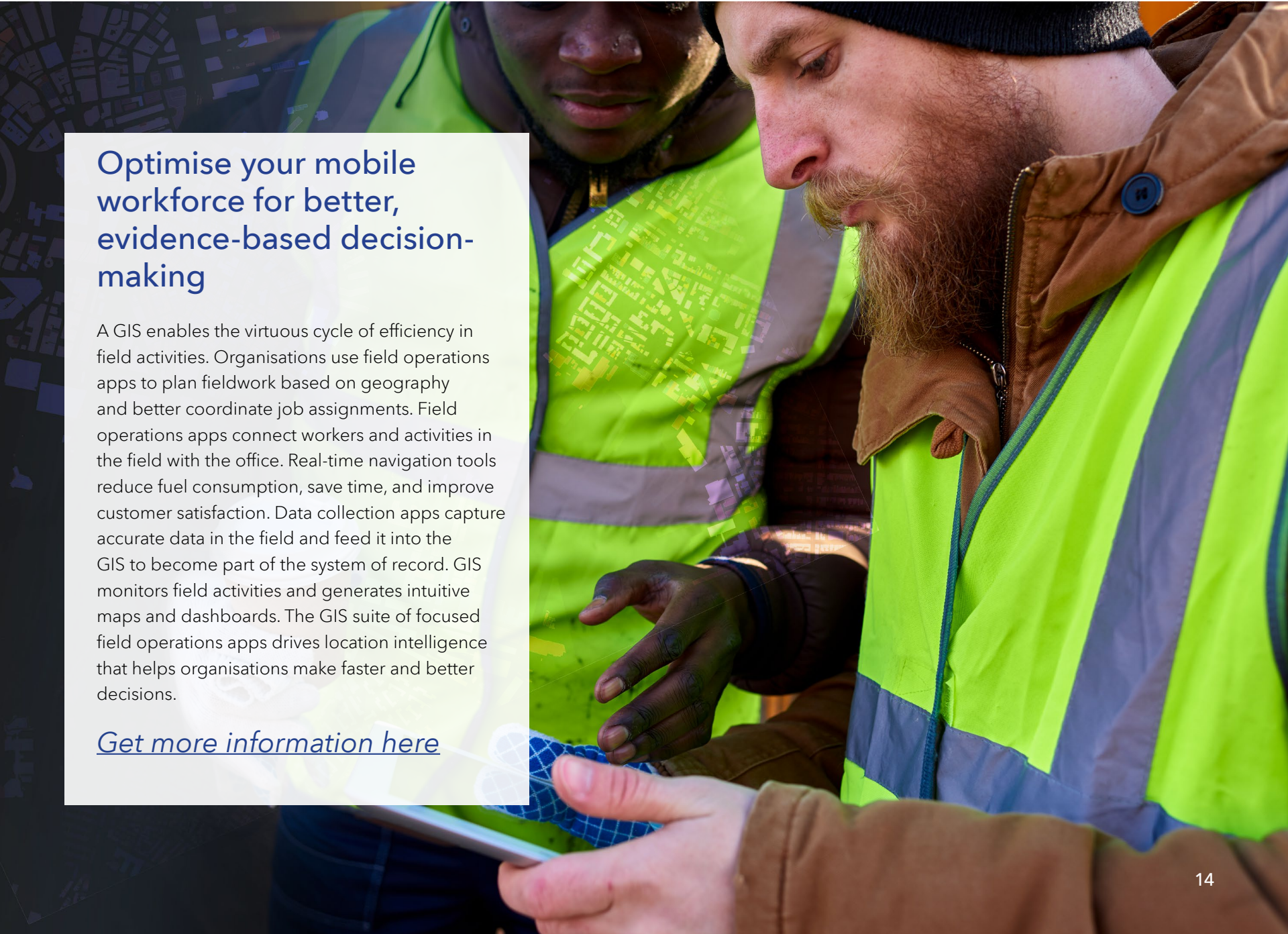
At Dublin Airport, ArcGIS is being used extensively and innovatively to collect, analyse and share real-time information about passenger movements, facilities and assets. Consequently, the airport's operating company, daa, can now see when and where it needs to take rapid action to improve the safety and quality of journeys through the airport. It can, for example, see which pavement repairs need to be prioritised to remove airfield hazards and can collect data on mobile devices about incidents on escalators, to better understand and reduce risks for travellers and staff.

Using the suite of field operations apps helps understanding of critical issues, including runway and taxiway usage and timings. These tools play a key role in supporting decision making on everything from the future expansion of the airfield to contingency planning, for example analysing ways to transport key members of staff to work following heavy snowfall, to improve the airport's ability to remain operational during winter conditions.

" Our aim was to think big, start small and work fast.ArcGIS gave us the platform we needed to connect systems, give all our workforce a single view of the truth and empower them to work more efficiently and flexibly all around the airport. "

Neil Moran, Head of Digital Asset Management & Transformation
Dublin Airport

Watch our case study to see how Dublin Airport CEO Vincent Harrison and his team, are using GIS in their strategic planning



Optimise your mobile workforce for better, evidence-based decision-making

A GIS enables the virtuous cycle of efficiency in field activities. Organisations use field operations apps to plan fieldwork based on geography and better coordinate job assignments. Field operations apps connect workers and activities in the field with the office. Real-time navigation tools reduce fuel consumption, save time, and improve customer satisfaction. Data collection apps capture accurate data in the field and feed it into the GIS to become part of the system of record. GIS monitors field activities and generates intuitive maps and dashboards. The GIS suite of focused field operations apps drives location intelligence that helps organisations make faster and better decisions.

Get more information here

About Esri

Esri Ireland

Esri Ireland is the official point of presence for Esri, with offices in Dublin and Holywood. Since 2002, Esri Ireland has partnered with both the public and private sector to help them understand the impact of geography on their business. Recognised as one of the Best Workplaces in Ireland, Esri Ireland is part of the Esri Global Network, a billion -dollar privately held software company with nearly 10,000 employees worldwide.

Learn more at
esri-ireland.ie

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