

# Digital Transformation in Workforce Mobility

Take the power of location anywhere



# Digital Transformation in Workforce Mobility

This e-book explains how our cloud hosted workforce system and our field mobility apps work together to improve performance in the field. It presents the components of our technology with a description of features and benefits and explains via four case studies how client organisations have incorporated these into their specific workflows and the benefits that they have accrued.

## Table of Contents

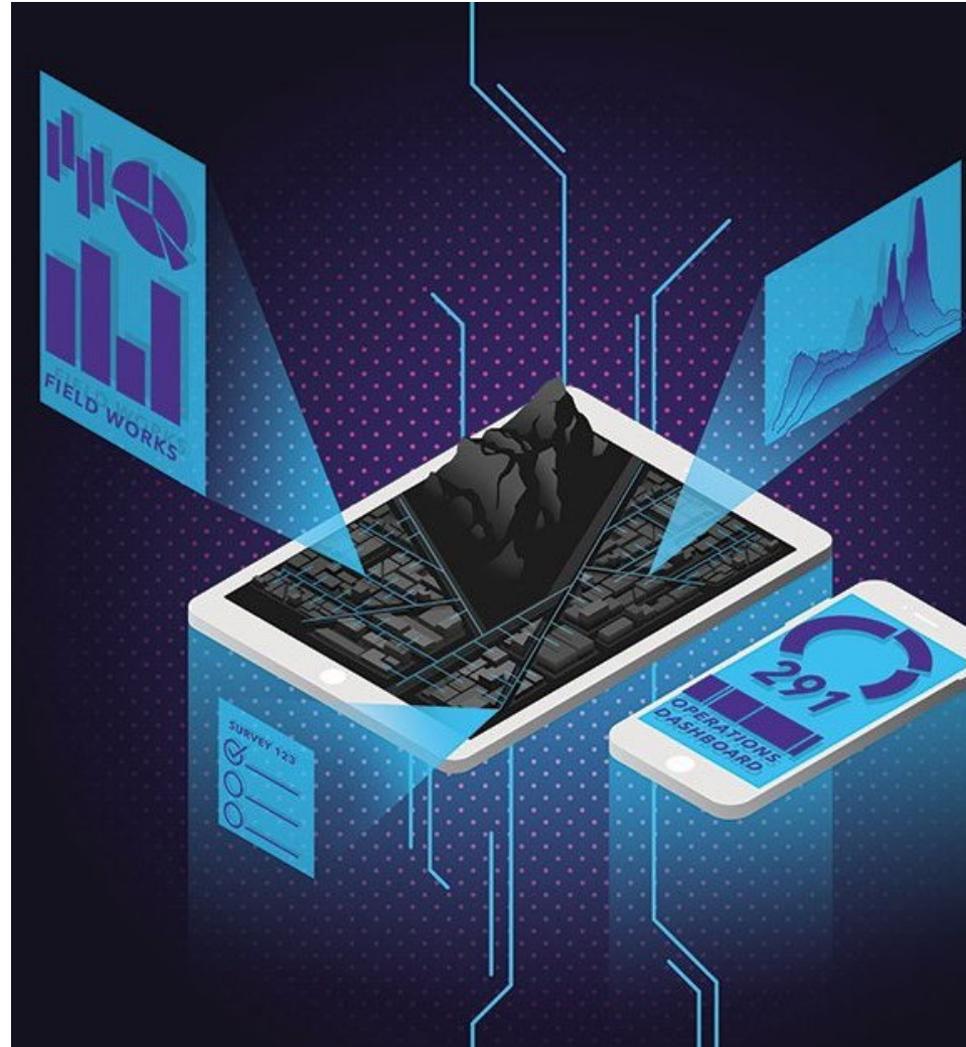
- 03** Introduction
- 04** What is ArcGIS Workforce
- 05** Workforce Apps
- 06** Dashboards and Reports
- 08** Application Integration
- 09** Cloud Hosted and Map Based
- 10** Apps That Empower Employees With Data
- 12** Apps That Navigate Success
- 14** Apps That Co-Ordinate Field Work
- 16** Apps That Improve Efficiency
- 18** Summary and Conclusions

# Introduction

By digitally enabling Field Workers and their Management, Companies can build workforce mobility solutions that improve Customer Service, Health and Safety compliance and Asset Management. Digital transformation of field operations can reduce costs, increase utilisation and boost both revenue and profitability. Our suite of workforce apps do this by replacing legacy paper based workflows, job cards and asset maps with their digital equivalents on smartphones and tablets.

We find that Operations Managers and Field Workers are more likely to make decisions faster and deliver better Customer Service if they can properly co-ordinate resources, jobs and customer locations using our location based workforce apps. Field operations need to be able to quickly adjust to changing conditions including last-minute requests, unexpected resource unavailability and transport delays. Now, when many Field Workers are operating their territory from a home base, it's also essential that returns to base are minimised. Our workforce apps allow you to easily see the location of the worker nearest to a call and quickly assign that worker to respond via a notification on their phone. This level of flexibility results in exceptional customer service and improved compliance with service-level agreements.

Using the feedback from smartphones and tablets, business Managers are kept informed as to the status and efficacy of operations in near real time and in a way that is simply not possible using legacy paper- based approaches.

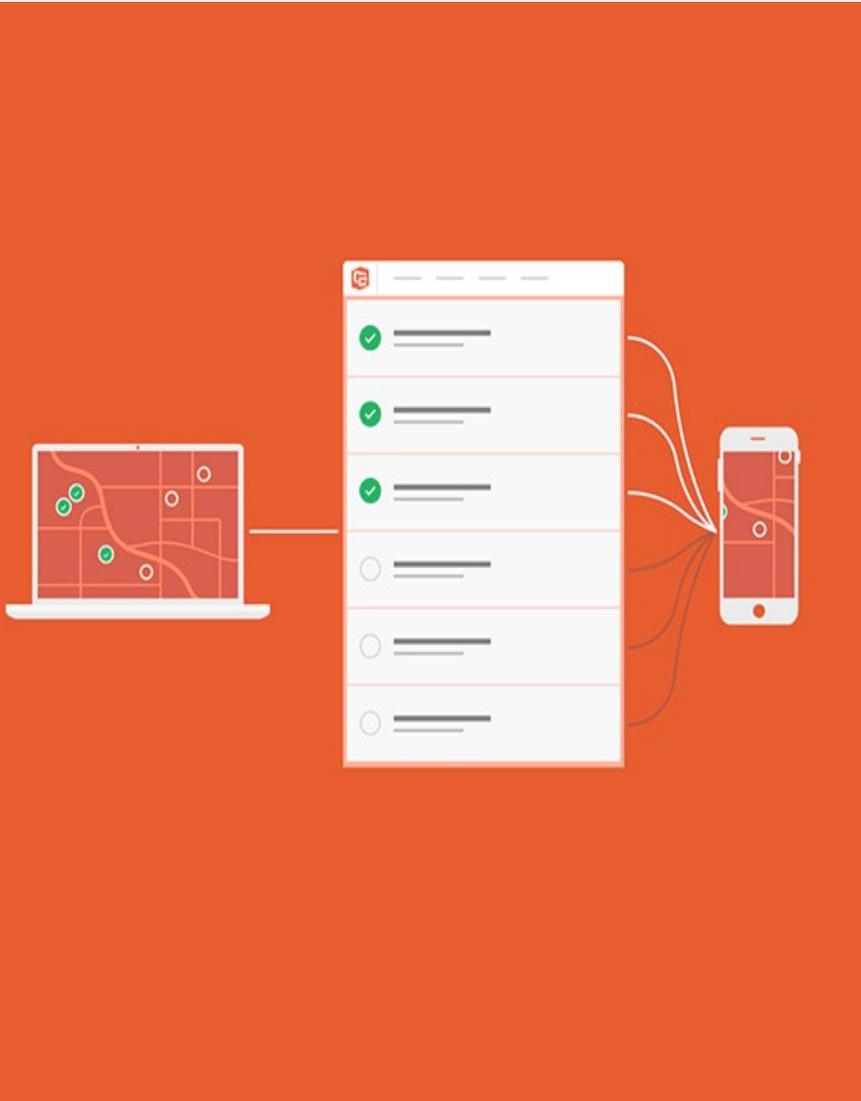


# What is ArcGIS Workforce?

ArcGIS Workforce is a map based field mobility solution that uses the power of location for better field workforce communication, coordination and teamwork. It's composed of a web app used by Operations Managers in the office, a mobile app used by Field Workers on their devices and browser based dashboards and reports for Managers. Its completely cloud hosted and works on all popular browser, smartphone and tablet devices.

ArcGIS Workforce delivers five key benefits:

- **Everything you need is on one device** - Field Workers can view and process job assignments, provide updates on job status and inform others of their location, all from one device.
- **Operations become more agile** - Using real-time and location-based information, Operations Managers can assign and prioritise jobs on the fly and ensure that work is assigned to the right people in the right place at the right time.
- **Productivity increases** - By replacing paper based job cards and forms with their digital equivalents that are submitted instantly to your back office, everyone's productivity increases.
- **Oversight is improved** - Because operations and job history are now digital, Business Managers can use Business Intelligence (BI) Dashboards to get a real time view of what is happening where to inform ongoing operations.
- **Better management** - Improved reporting on job progress, employee productivity, health and safety compliance, asset performance, inventory and billing as well as other key business metrics, leads to better overall management.



Used together, our Workforce apps, Dashboards and Cloud can create a positive feedback loop for your Organisation, improving communication and job satisfaction as well as customer service and compliance.

## Workforce Apps

Our solution incorporates a number of 'workforce apps'. These work together to bring communications and mobility benefits to your back office and mobile workers. They can be easily configured to reflect your own business process. They are;

### Workforce Dispatcher

Workforce Dispatcher is used by Operations Managers to create and assign jobs to Workers in the field, to set due dates, priorities and to monitor progress against those jobs and the location of Field Workers. Operations Managers can assign jobs using address or Eircode, or by selecting one or more Customer assets that you can add to your Dispatcher screen from a GIS system. In the latter case Asset ID's may be passed from the Dispatcher screen to the Field Worker and back again unifying the job information with the asset.

### Workforce Mobile

Workforce Mobile is used by Workers in the

field to receive the jobs assigned to them in both list and map form sorted by due-date, priority and proximity. Workers can Accept, Reject, Pause, Decline or Finish a job and each action changes the status of the job on the Dispatcher screen used by the Operations Manager. Workers can access attached documentation that describes the job and can also provide feedback messages from within the app to the Operations Manager. Because the Workforce Mobile app has access to the device GPS and camera, it can provide verification of attendance using location reports and photographs.

### Survey123 Field App

Survey123 Field App, is used by Workers in the field to walk through and complete the actual worksheet for each job type. This will vary across industries, customers and jobs so our solution provides a forms builder that enables you, or us on your behalf, to build a job form that reflects your exact needs. The worksheet form is invoked directly from the Workforce Mobile app which passes the Job Number and other back office information into the form. The worksheet form is extremely versatile with over 20 question types including location from the GPS or by map tap, barcode, signature, annotated photograph, sound clip, likert,



logical, numeric or text with pick lists and range constraints. Worksheet forms can contain 'if then else' business logic and intelligent defaults to ensure Field Workers can complete the form quickly and efficiently. Each job worksheet submission adds a job record, stamped with location, date, time and Worker name to your jobs list on our cloud hosted system. This accumulates into a verifiable, concise and persistent record of who did what, where and when.

## Navigator

Navigator Mobile App can be used by workers in the field to navigate to the job location with turn by turn directions. Or if preferred we can integrate with Google Maps, Apple Maps or Waze for this function.

## Trek2There

Trek2There Mobile App can be used by Workers in the field to navigate to the job location using distance and bearing when the location is off the navigable or public road network or when an asset is difficult to find.

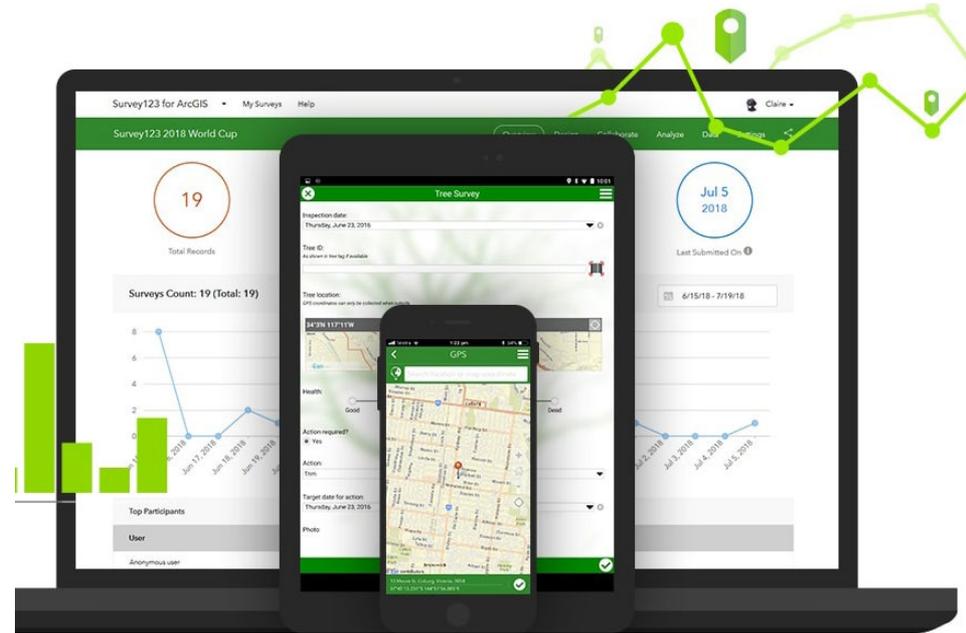
## Dashboards and Reports

The workforce apps accumulate information into a verifiable, continuous and concise record of job history over time. This is an invaluable source of information that can be used by Management to monitor business performance, employee productivity, service levels, compliance and KPI's. It can also be used to respond to and help Customers with specific issues around a particular job or it can be used to monitor hours spent and inventory used in order to inform a billing system. The Dashboards we provide are visual displays that present this data in an easy-to-read format. All relevant information can be seen on a single screen, facilitating understanding quickly and easily.

## ArcGIS Dashboards

ArcGIS Dashboards are browser based apps that provide real time insight into any aspect of your Field Operations on which you have collected information using the workforce apps.

Dashboards convey information by presenting locations, statuses, quantities, statistics and analytics using a set of visualisation 'widgets'. These widgets can display maps, charts, lists, statistics and trendlines based on the information in your job history archive. As the job history is itself dynamic, so too are the widgets and the dashboards. As your Field Workers input information, the dashboards auto-update to display the latest information.



## Feature Reports

Feature Reports enable you generate high quality printable documents from data captured in your job history archive. The Report Builder allows you to define the contents, look and feel and branding of your final report using Microsoft Word. The report template you build can then be associated with your selected job history records. Feature Reports are useful when you need to present the history of a particular job following strict formatting guidelines, for example when mimicking legacy paper forms or to comply with legal documents.

## Summary Reports

Summary Reports also enable you to generate high quality printable documents from data captured in your job history archive. However, unlike Feature Reports which are generated at the job level, Summary Reports aggregate multiple individual jobs to report over a time period, job type, Field Worker or location and present summary information. Summary Reports are useful when you need to present higher level information for a reporting period or operational area, for example at a monthly board meeting.

## Dashboard and Report Builders

Dashboards and Reports tend to be very

specific to industries, customers or job types, so we provide a Builder for both that enables you, or us on your behalf, to configure the dashboard or report that is pertinent to your needs. The type of dashboards and reports most commonly encountered are;

- **Productivity Monitor:** This type of report or dashboard provides information as to the productivity of the Field Workforce as a whole or at individual Field Worker Level. It can include information such as hours worked, billable hours, jobs assigned, jobs completed, distance travelled and many more.

- **Asset Monitor:** This type of report or dashboard provides information as to asset performance where jobs are undertaken on an asset base. Because the Workforce apps are asset aware these reports can mine the job history archive to identify assets that may be underperforming and causing multiple callouts. They can also identify trends in asset performance generally and can provide specific information back to Asset Managers as to the location and status of assets.

- **Compliance Monitor:** Many organisations with large distributed workforces are required to monitor that their Field



Workforce is adhering to the relevant Health and Safety Standards as before they start a job. This can be accomplished using a digital Health and Safety worksheet which is completed and signed by the Field Worker and transmitted to the back office along with the other information in the job history. Dashboards and reports can then be built to tally the Health and Safety information with the individual Field Worker and the job itself.

# Application Integration

Many organisations have been conducting Field Operations for a long time, they have the right people, systems and processes to get the job done. Workforce mobility should augment these existing assets to bring further benefits to the organisation. With this in mind, our Workforce apps are all capable of integration with existing back office systems and they can be configured to either reflect or replace existing business processes whilst enhancing the productivity of your people.

Our technology works against modern, open and published and RESTful Application Programming Interfaces (APIs) that allow you, or us on your behalf, to build integrations with many GIS, CRM and ERP systems commonly found in the back office. This often means that you can extend the life of these back office systems whilst still bringing the benefits of digital transformation to your Operations Management and Field Worker roles.

Our RESTful API's support a technology called 'webhooks' that make them plug-and-play with a wide variety of other systems from providers such as Integromat, Microsoft Power Automate and others. These 3rd Parties provide connectors between our workforce apps and hundreds of other apps and services. Such apps and services include eMail, SMS, Google Sheets, Excel, MS Dynamics, Dropbox, Office365, Microsoft Teams. In fact, using webhooks and these integration systems we can build complex business workflows for job routing and sign off, escalation and report production. These workflows can either model your existing process or you can take the opportunity for process review when you digitalise.



# Cloud Hosted and Map Based

Our back-end system is cloud hosted by us, you don't need to worry about expensive hardware, software installation of ongoing system updates, we do all that for you. What you get is a modern, world class, highly available, powerful and responsive system that enables you to record and map the location of your Field workers, your Customers, your Assets and your Jobs.

This system is available in your browser or on your smartphone or tablet simply by logging in using your own personal Named User account. The Named Users in your business are grouped into a private cloud exclusive to your Organisation. All our workforce apps, dashboards and reports work wherever there is an internet connection and the workforce apps themselves will also work offline and synchronise when a connection is available. This enables your Field Workers to continue working in areas where 3G/ 4G coverage is poor.

Our system always records the location, time and date of every transaction along with whatever other information you define. This enables us to present your job assignments, job history, Customer locations and asset inventory in the form of a digital map and to use geography to improve your operations. This could be by assigning the nearest Field Worker to the closest job, using navigation and route analysis to optimise drive time across multiple jobs or maybe targeting jobs and Field Workers to areas where your asset base is not performing well. Our Customers find that having the digital map available helps to both co-ordinate and visualise operations in a way that textual lists simply cannot.

# Apps That Empower Employees With Data

4Site - Accelerating the delivery of next generation fibre networks

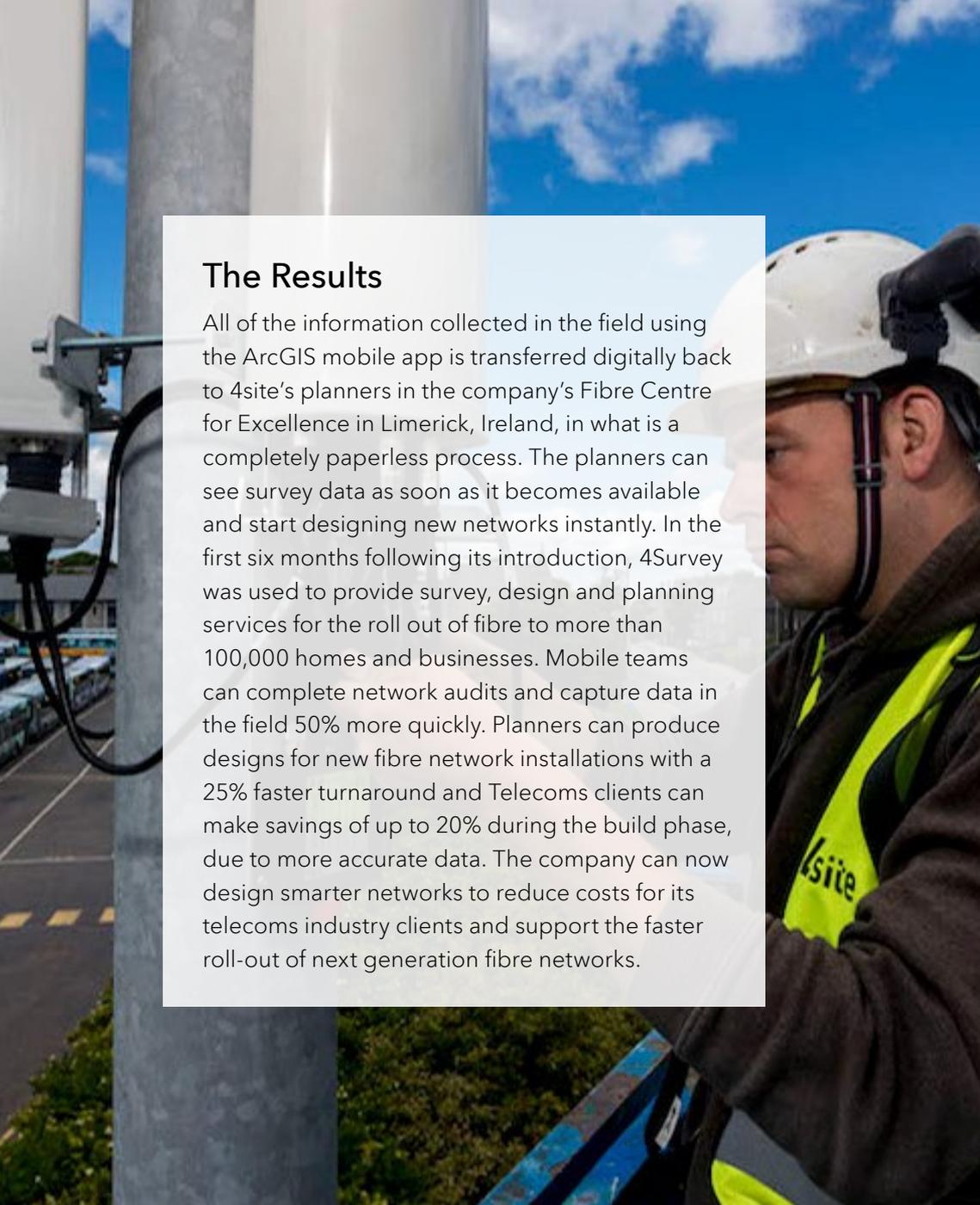
## The Challenge

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 ro-ro 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 - 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 m<sup>2</sup> 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. ”**

Morgan Crumlish, Spatial Data Systems  
Manager  
Dublin Airport

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

# Summary and Conclusions

We observe that many Companies have a large, distributed workforce, asset base or customer base. Walking the corridors of these Customers we often see paper maps on the wall with pins to identify points of interest.

In an era when you can open Google Maps on your smartphone and find virtually anything, why can't you see and search your own information in order to better visualise and analyse your operations?

Our workforce app suite allows you to do just that, to create your own private maps and turn those pins into interactive pop-ups on a digital map. But it goes further, it enables you to ping jobs and asset information to your Field Workers via the map, to assign them jobs prioritised by time or date and proximity to their position and it enables them provide you with feedback on job progress or to report on asset status.

This feedback is then used to provide interactive BI dashboards and printed reports that help business monitor and comply with their service level agreements, improve safety and boost productivity.





# About us

---

## 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.

**For more information, please contact:**

**T** [353 1 869 3900](tel:35318693900)

**E** [mapsmakesense@esri-ireland.ie](mailto:mapsmakesense@esri-ireland.ie)

[www.esri-ireland.ie](http://www.esri-ireland.ie)

**LinkedIn:** [/company/esri-ireland](https://www.linkedin.com/company/esri-ireland)

**Twitter:** [@EsriIreland](https://twitter.com/EsriIreland)

**YouTube:** [@Esri Ireland](https://www.youtube.com/EsriIreland)

**Instagram:** [@esriireland](https://www.instagram.com/esriireland)

Learn more at  
[esri-ireland.ie](http://esri-ireland.ie)





Visit us at [esri-ireland.ie](https://esri-ireland.ie)