

Making the most of mobile

Northern Ireland Water

The Challenge

- Expand the use of ArcGIS mobile apps for fieldworkers
- Keep data collected in the field securely backed up

The Benefits

- Significant efficiency improvements
- Cost savings across the business
- Ease-of-use for staff and contractors
- Effective collaboration within dispersed teams
- Better quality data, securely backed up

Northern Ireland Water is continuing to augment the value that it gains from its investment in Esri's ArcGIS technology, by expanding its use of mobile apps. Across the organisation, around 250 employees and contractors now use a range of ArcGIS mobile solutions in the field, in digital processes that are easy to use, highly efficient and fully backed up.

The Challenge

It is a well-known adage that 'success breeds success,' and this is definitely the case at Northern Ireland Water (NI Water). Over the course of several years, the organisation had built several mobile solutions for its fieldworkers using Esri's geographic information system (GIS) technology, ArcGIS. These apps were not only beneficial to the business but also popular with staff, and demand for more mobile solutions soon began to grow beyond everyone's original expectations. "Colleagues were seeing the value of using ArcGIS apps in the field and asking us for more!" recalls Aidan McCann, Asset Data Manager at NI Water.

The Solution

Responding to this unanticipated surge in demand, NI Water set about building additional mobile solutions for specific teams using Esri's ArcGIS Enterprise and ArcGIS Online platforms. It had accrued a lot of experience of using ArcGIS technology, so was able to build app after app, in-house, with its existing ArcGIS licenses, at no additional cost. Now, around 250 fieldworkers use over 40 ArcGIS mobile apps on a daily basis for everything from reporting pollution incidents to registering the serial numbers of valves.

One particularly important new mobile app supports the Water Main Rehabilitation Programme, which involves upgrading approximately 500km of water mains as part of the Capital Works programme. Previously, surveyors would take paper-based asset drawings out to sites and update them with hand-written notes and lines, which were subsequently typed up. Now, surveyors view and edit asset drawings on their tablets using an ArcGIS Field Maps app, and updates are shared instantly with their office-based colleagues.

Another of NI Water's new apps supports the process of discovering where groundwater or seawater is seeping into sewers. Called Ingress and Infiltration, this particular app was built with ArcGIS Survey123 to allow surveyors to record information during manhole survey investigations and capture pictures and videos showing water flow. All the data captured is displayed in an ArcGIS dashboard, enabling office-based staff to view survey findings and plan programmes of works to prevent excess water entering the sewerage network and overloading treatment facilities.

To protect the large volumes of information, photographs and videos that fieldworkers were now collecting with their ArcGIS mobile apps, NI Water created a new automated back-up process. Built with the ArcGIS Online REST API and Safe Software's FME solution, the bespoke solution replicates over 4GB of data in ten minutes every night and stores two weeks of data from mobile processes, including attachments, without any human intervention. "Our back-up solution allows us to apply the same rigorous backup strategy to the new data captured in the field and stored online as our legacy data held on premise," says Andrew Murphy, Lead Analyst at NI Water.

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The Benefits

Significant efficiency improvements

The ArcGIS apps for fieldworkers are delivering significant improvements in operational efficiency. In the new Water Rehabilitation workflow, for instance, hundreds of hours of effort have been removed annually as a result of the switch from paper-based to digital data capture. “ArcGIS has sped up the whole process from the installation of new pipes to the recording of the as-built assets,” McCann says. “It has gone from taking months to validate and receive As Constructed drawings to just a couple of weeks.”

Cost savings across the business

Cost savings are hard to quantify, but the project team is confident that the time savings are translating into substantial cost efficiencies for the business. The Ingress and Infiltration app, for example, has dramatically improved the detection of tidal sea water ingress into the sewerage network. The business has halted ingress that was previously undetected and, as a result, significantly reduced energy usage at several wastewater pumping stations.

Ease-of-use for staff and contractors

ArcGIS apps are very easy for staff and contractors to use, which has contributed to their rapid adoption throughout the business. ArcGIS Survey123 forms have been designed with pre-populated fields and drop down boxes making them simple to complete. ArcGIS Field Maps apps are similarly intuitive to use, enabling people to find hidden and remote assets, like sensors on rivers, without wasting time.

Effective collaboration within dispersed teams

Many of NI Water’s ArcGIS mobile apps have been configured to allow other team members to see asset changes or progress updates straight away. The ArcGIS solution for Ingress and Infiltration is a good example of this, as Micheal Coyle, Ingress and Infiltration Project Manager at NI Water, explains. “The new Ingress and Infiltration platform allows field staff and contractors to capture network data in real-time and automatically inform analysts and managers, to identify trends or raise follow-on work,” he says.

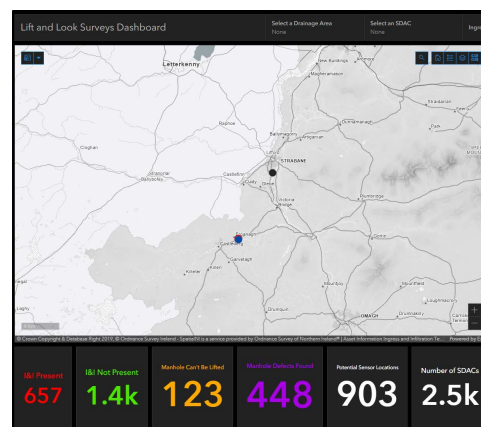
Better quality data, securely backed up

Through the use of ArcGIS mobile apps, NI Water can collect better quality asset data, alongside photos and videos, and verify existing asset data in the field, all of which is improving the accuracy of the Corporate Asset Register. What is more, all the data collected in the field is securely backed up. “Recovering this data could take many days of additional fieldwork and therefore cost thousands,” notes Murphy. “Our back-up process gives us confidence that our valuable asset data is safe.”

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The ArcGIS dashboard for NI Water’s Ingress and Infiltration programme, used for managing the process of finding locations where water enters the sewerage network

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