GIS vs. Mother Nature

By Bill Meehan on June 9, 2015

New England is famous for three things: Competitive sports teams. Trees. And wicked bad weather (note the regional slang). The weather gets particularly bad during winter, from snow and moisture content.

When I ran electric operations for a New England power company in this challenging environment, there was some good news: I employed the most hardworking, dedicated crews.

The bad news was, like our Patriots, they were incredibly competitive.

Why is being competitive bad news? Well, the utility company was organized by district: north, south, central, and so on. During big storms, each district would battle to see who could restore customer power the fastest. The problem was, each district hoarded its crews. So while the north district served small service drop jobs, the south struggled to repair main lines. A lot more people went without power in the south than the north.

The power company could have done much more if we

had known the types of work going on in each district. I could have immediately dispatched crews, for instance, from the north to south to optimize restoration to the most customers across the company. But because I didn't have a solid situational awareness of the full restoration effort, I couldn't. I knew the number of outages, jobs, and crews assigned. But there was no overall picture to determine the overall restoration-effort impact.

Yes, my crews were competitive. That was noble. But that wasn't enough to provide optimal restoration for the whole company.

Getting Good Damage Assessment

I was in charge of power restoration, but the trick was getting a good assessment of the damage Mother Nature had caused. Since trees were absolutely everywhere, you never knew if a power failure traced back to one tree that had fallen onto a circuit or 100 trees that had taken out multiple parts of the circuit. We needed rapid, holistic damage assessment to determine how many jobs our crews had to do to fix and how long those jobs would take – in other words, how long it would take to get everyone's lights back on.

What I needed was the ArcGIS platform, but back then it didn't exist. Now it does, and the platform lets utilities see the entire restoration effort, from beginning to end.

With the platform, I would have been able to speed up the damage assessment. Back in those days – and today for many utilities – damage assessment is a slow, manual, and arduous process. It often starts with lots of people and lots forms. They traipse through the snow with pencils and paper maps. In our case, they would spend several hours gathering all this damage-assessment information. Then they would head back to our service centers, where staff organized forms and input the information into spreadsheets. The next step was trying to make sense of the data.

It doesn't need to be so hard anymore. With the ArcGIS platform, field workers today can – and are – gathering damage data on mobile devices with photos, notes, and preconfigured data drop-downs. The devices immediately transmit this information to utilities' Emergency Operations Centers, where an executive dashboard shows in real-time all damage occurrences. Dispatchers can immediately make geographically strong crew-staffing decisions.

With this, I could have ended the battle between the north and south while getting customers' power on faster. The immediate access to visualized situational awareness would have shown where we didn't have

enough crews in the south at the very start of our damage assessment, rather than three quarters of the way through the process.

The platform serves as an early information system. Utilities can see if they have enough crews to handle the outage and if those crews are in the right spots. You can use it to arrange the right number of contract crews or foreign crews from neighboring utilities right away, rather than too late. You can visualize the impact of your restoration effort in a much more dynamic way. You can even incorporate data from your Outage Management System (OMS), Automated Vehicle Locator (AVL), and SCADA system. This gives you real-time views of the situation at every step.

The Calm after the Storm

Restoration involves more than just getting crews out into the field and cutting away dangled wires from downed trees. It involves communication, collaboration and information sharing. This applies to first responders, shelters, politicians, media, and frenzied customers.

It also involves accessing a constant stream of information about flooding, blocked streets, bridges out, traffic, and hazardous situations. I would routinely be on the phone during and after a storm, madly writing information from police and fire officials about the situation on the ground.

With the platform, that information streams into my GIS dashboard right now.

What better way to share storm-situation information than with a map? Perhaps the only thing better is a data-driven map with all your critical information. The ArcGIS platform provides that.

That's why modern GIS as a platform is critical for utilities. This is what it does best. It brings disparate information together so you can make decisions – decisions that lower costs, get the lights on faster, and inform people to do their jobs as fast as possible.

The competition isn't to see which district can get customer power on faster. The real tame is to get all the lights on as fast as possible.

Learn how the ArcGIS platform improves your storm response at esri.com/storm.

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