

How one transportation business survived hurricane Sandy

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In a year-long case study of a major American transportation company, researchers at The Ohio State University have uncovered the strategies that helped the company maintain safety and meet customer demand during 2012's Hurricane Sandy.

One key to the [company](#)'s effective response was its setup of a weather event management team, an ad hoc group that set planning priorities as the storm approached the United States, ensuring the protection of personnel and equipment in [hurricane](#)'s path.

More surprisingly, as landfall was imminent, the company's schedulers were able to provide an especially fast response to changing conditions by bypassing normal communications channels that relied on technology. Instead, they spoke to each other face-to-face or directly on the phone to speed the exchange of information about time-critical issues.

The researchers were already studying the company when Sandy occurred almost exactly a year ago. David Woods, professor of integrated systems engineering at Ohio State, and doctoral students David Deary and Katherine Walker spent time in its command centers and field operations throughout 2012. The company asked that its name be withheld from the study results.

"It was an opportunity for us to see [resilience](#) in action at an organizational scale," Woods said. "When this hurricane struck the northeast—an area of the U.S. that's very sensitive to transportation

disruptions—it provided a salient example of how organizations need to be prepared for challenging events in our interconnected world."

They reported the results of the study Thursday, Oct. 3, at the Human Factors and Ergonomics Society meeting in San Diego.

As technology continues to make the world more interconnected, businesses have to be more concerned with resilience, Woods said—not just automakers, banks and utilities, but any company that relies on managing risk or digital assets or continuity of service for its customers. Financial, political and environmental threats emerge quickly, and aren't as easy to anticipate as a hurricane.

Woods has long studied the issue of resilience, and is president of the Resilience Engineering Association—an international professional organization "facilitating the development of techniques to outmaneuver the complexities of today's world."

He explained that businesses can react to disruptions one of two ways—they can go completely rigid and stop providing services, or remain flexible and continue to provide services whenever or as long as possible.

The company under study uses flexibility to compete in its area of the transportation industry. So the company remained open and accommodated emerging customer requests until it had to stop to ensure personnel safety and protect its equipment.

As meteorologists tracked Sandy's approach across the Atlantic, the company set up a weather event management team to connect experts and decision makers who had the authority to commit the company's resources or accept risk for meeting individual customer requests in the northeast. It scheduled a complete shutdown of services for the time

when the hurricane would make landfall.

Until then? "They were scrambling to do everything they wanted to get done," Deary said. As one senior employee in a command center told him, "The actual storm is not a crisis—getting ready for the storm is a crisis." During this time, the company adopted strategies to speed communication and decision-making.

"It may seem counterintuitive, but in order to speed things up, they stepped back from electronic communication. When an issue was important, they actually walked around the command center and talked to each other directly," Deary observed.

To save time, the schedulers in the command center were also given the authority to make critical decisions, such as those concerning asset movement and protection, without seeking prior approval of senior managers. This approach was successful because of the schedulers' keen awareness of management's priorities in responding to the event.

Ultimately, the company suffered no human injuries or significant equipment damage. It met many, though not all, last-minute customer requests before Sandy arrived, and appeared to meet customer expectations for restoration of service after the storm passed, the researchers concluded.

"This study suggests that a business doesn't have to be perfect, but if it's flexible—if it's clear to customers that you're trying to be flexible in accommodating them, you succeed in the long run, and stakeholders look at you in a positive way," he said.

This study is just one of many where Ohio State students are learning to help organizations become more resilient. He also helps lead a university-wide Initiative on Complexity in Natural, Social and Engineered

Systems—a 10-college collaboration which aims to develop certificate programs in complexity. Through collaborations with the John Glenn School of Public Affairs, the initiative is providing computer modeling tools that Ohio State students will use to study interconnected systems and guide new research.

More information: The presentation, "Resilience in the Face of a Superstorm: A Transportation Firm Confronts Hurricane Sandy" will be given at 3:30 PT Thursday, October 3, 2013 at the annual meeting of the Human Factors and Ergonomics Society in San Diego.

Provided by The Ohio State University

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