INTERSECTION OF MAPPING SCIENCE AND GEOSPATIAL 2.0

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Advances in geospatial technologies benefit industries and economies around the world. In the United States, local governments were hit hard economically by the COVID-19 pandemic. Lockdowns and business closures reduced tax revenues, while at the same time, local governments increased costs in health and human services.

We implemented a Coronavirus Aid, Relief, and Economic Security (CARES) Act website to help local governments access, manage and apply for federal pandemic relief funds. Similarly, we were contracted to develop a pandemic funding map, a live map for the US Pandemic Response Accountability Committee. We also refocused our attention on geospatial services that increase revenues for local governments, such as property assessment tools.

The role of 4IR

"The Fourth Industrial Revolution" author Klaus Schwab said, "Like the revolutions before it, 4IR has the potential to raise global income levels and improve quality of life for populations around the world." Like biological evolution or geomorphology, the velocity of change is not constant but punctuated by brief periods of rapid change brought about by relatively random events. Paleontologists Stephen J. Gould and Niles Eldredge called this "punctuated equilibrium." In a short period of time, a lot can change on the Earth. Technologies that combine continuous, precise Earth Observation with 4IR advances like Machine Learning create actionable intelligence to get ahead of the negative aspects of change.

The events of 2020 accelerated 4IR. Even before the pandemic, we had a saying that "work is a thing, not a place." We had the enabling technology in place for telework, bring your own device, virtualization, and so on. That opens many economic possibilities. Many of the disruptive technologies arising through 4IR are enabled and supercharged when the quality, consistency and reliability of the inputs are high.

Addressing global challenges

As was noted by this magazine in a story last year, "Geospatial 2.0 promise is to dramatically improve the decision-making process, leveraging new data and location data." I am really interested in how new geospatial technologies address the global challenges of Climate Change and sea level rise. We were early to adopt topographic bathymetric LiDAR for detailed coastal mapping, and have added satellite-derived bathymetry and coastal monitoring to the fold. By complementing these services with hydrographic surveying, watershed modeling and water resources engineering, these tools can address issues that impact everything from inland waterways to coastal environments. Additionally, we are involved in shaping the policy and standards around the Internet of Water, which truly embodies the idea of Geospatial 2.0 and 4IR.

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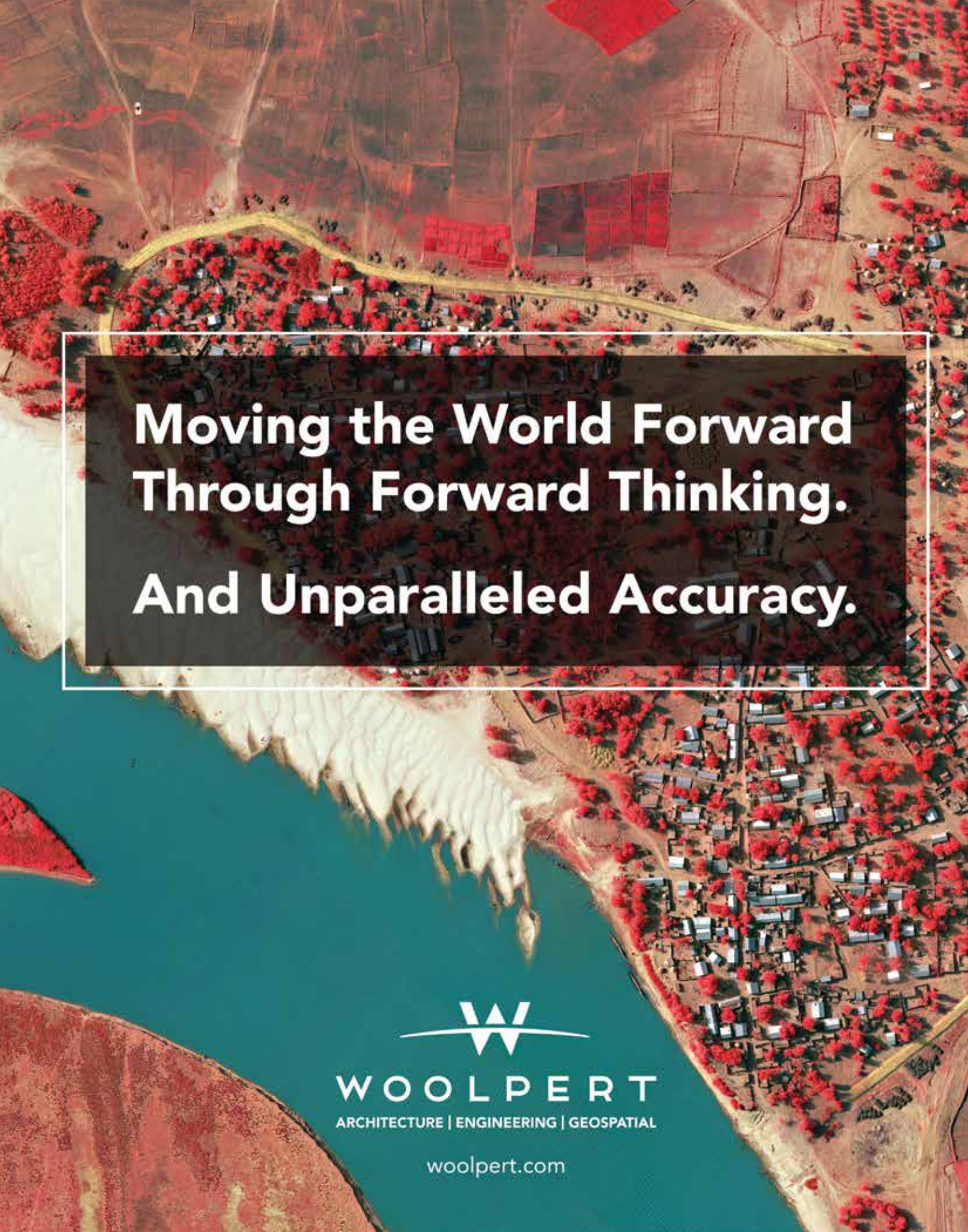
Looking ahead

I am most looking forward to being part of the evolution of next-generation sensors, such as hybrid topo-bathy LiDAR systems. We are developing next-generation systems built not only for coastal mapping but also for collecting inland topo-bathy elevations in and around streams, rivers, lakes, and other water bodies. These hybrid, multispectral systems are fantastic because they create new opportunities in both water and land, so we can see and extract more information than ever before.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