LOGICAL DESIGN SOLUTIONS®

# Commercial Drones &
Front-Line Workers

A case study on digital transformation in Operations & Logistics

Digital transformation is fundamentally changing the nature of work by advancing man-machine relationships that propel workers' effectiveness in their jobs. Internet-connected smart devices, part of the vast Internet of Things (IoT), can now provide information at a scale, speed, and level of detail that was previously unimaginable. Big Data combined with ever-increasing computing power is enabling the use of artificial intelligence and machine learning in new and powerful ways. The aggregate impact of these innovations is nothing short of a watershed for people's practices and capabilities at work.

Coupling new data collection techniques with artificial intelligence capabilities has the potential to bring enormous value in many scenarios, especially in operational contexts where digital devices can collect data quickly and accurately. When we combine raw data with artificial intelligence, we gain insights that enable more efficient operations and better decision making. Industries today are already leveraging these innovations for smarter supply chain management, automated quality control, predictive maintenance, and more cost-effective use of human capital. The shifting of tasks to machines (with people occupying roles requiring complex perception, synthesis, and judgment) will continue – because more and more, machines are quicker, more accurate, and safer at doing some kinds of work than people are.

At LDS, our interest is envisioning and designing people-centric digital experiences where technology and humans partner in the context of new work.

The shifting of tasks to machines will continue particularly where machines are quicker, more accurate, and safer.
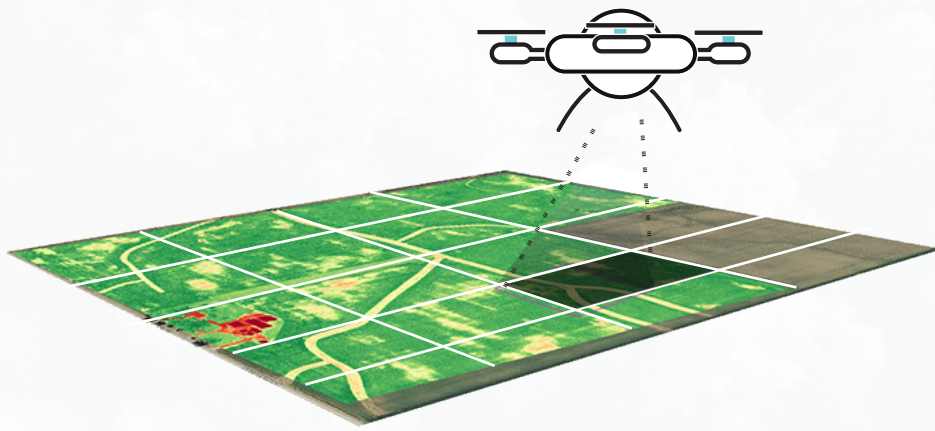
We help to realize the emerging omni-channel enterprise ecosystem, where digital devices and capabilities such as drones and cognitive computing enable people to be highly productive and optimized in their roles. Here, human and machine interaction is mutually reinforcing: people ensure better outcomes, while machines get smarter and more relevant.

Case study: First responders partner with drones and AI

In the aftermath of a major disaster such as a hurricane or flood, speed is imperative in assessing damage to infrastructure and risk to human life. LDS recently partnered with Aerial Applications (Aerial), a drone technology solutions company that pairs drone data with artificial intelligence. Aerial passes raw images captured by its drones through a cognitive AI engine to decipher the data into meaningful classifications such as fallen trees, downed power lines, or flooded streets. Through advanced deep learning algorithms, user feedback, and its rich dataset, the AI is trained to identify known classification types more accurately as well as learn new types of classifications. This approach yields a quicker assessment and faster insights critical to individuals responding on the ground.
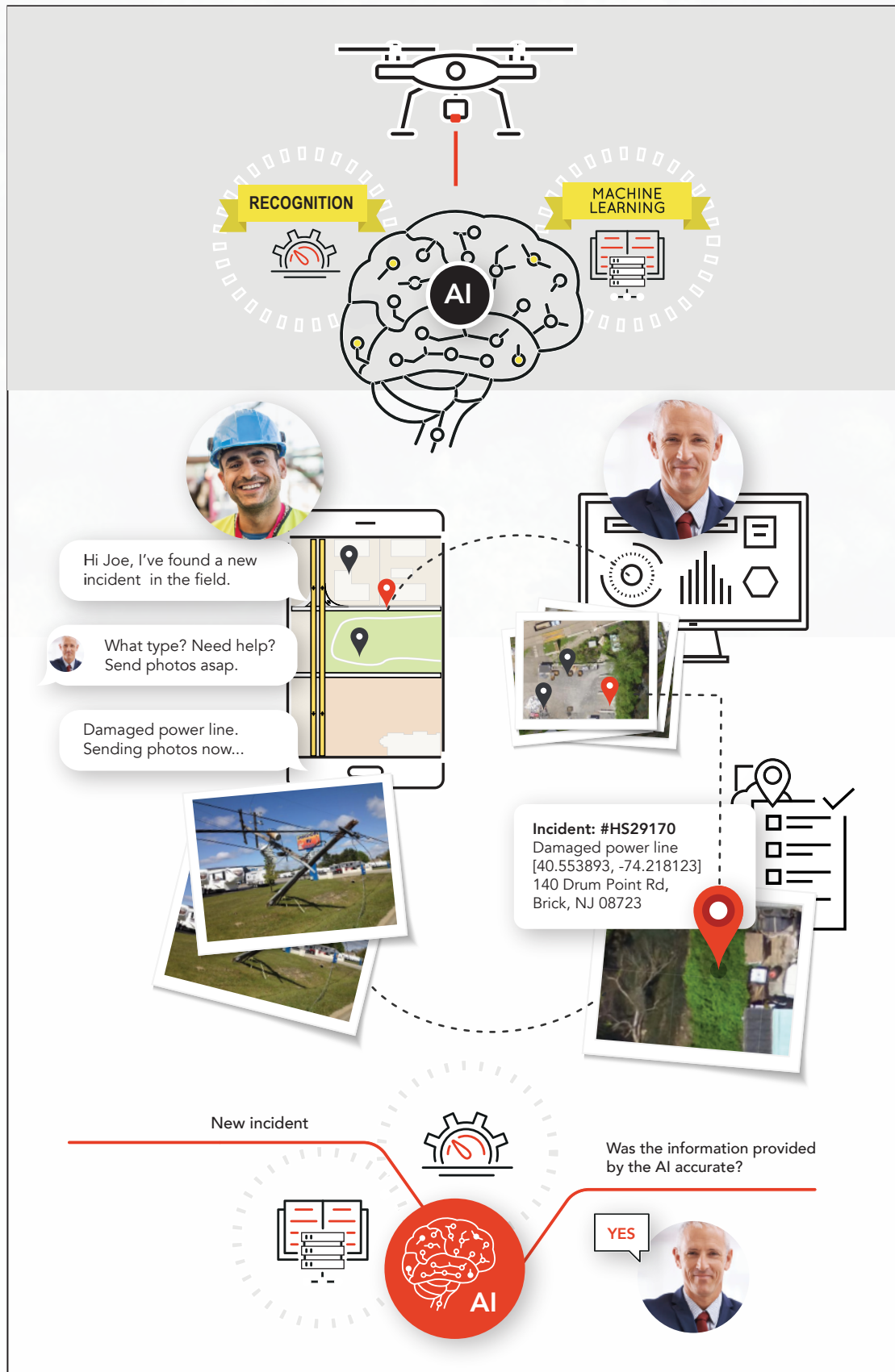
Aerial had the assets, but they needed an interface to bridge the human-technology divide. Even the smartest AI in the world isn't helpful unless you can give people a way to view, understand, and act on the insights it provides.

Truly smart experiences provide two-way communication between people and their AI counterparts.

Smart experiences in disaster response

Experiences leveraging the power of AI and machine learning yield smarter, more coordinated response efforts when disaster strikes.

RECOGNITION

MACHINE LEARNING

AI

Hi Joe, I've found a new incident in the field.

What type? Need help? Send photos asap.

Damaged power line. Sending photos now...

Incident: #HS29170
Damaged power line
[40.553893, -74.218123]
140 Drum Point Rd,
Brick, NJ 08723

New incident

Was the information provided by the AI accurate?

YES

AI

As the experience strategist and designer, LDS needed to create the intuitive experience that would visualize and reason about AI-identified incidents, prioritize them, and provide the project manager and front-line field responders with a organized response plan.

With a smart assistant to decipher and reason about complex information, teams can better coordinate activity and prioritize work. But beyond simply reacting to the AI inputs, the experience also serves as an enabler of people to tune the AI. A person might, for example, confirm or reject the AI's conclusions. Alternatively, a person could manually identify an incident at a given location, providing the AI with new information to factor. This creates a feedback loop that helps the AI get smarter over time, and takes a critical step in weaving cognitive capabilities into the user experience. Truly smart experiences provide two-way communication between people and their AI counterparts.

What's next: Human experiences define digital success

New digital experiences must be designed with a view of the AI as new kind of constituent with a unique stake in the outcome, not just as an enabling technology. Increasingly, it will be useful and even necessary to view AI entities in this way. Doing so compels us to think of the role that the AI is playing relative to other constituents. What does it contribute? Who does it interact with? What are its responsibilities relative to other constituents? The user experience will necessarily facilitate this human/AI interaction. Smart applications of AI will begin to help people prioritize tasks, provide decision support, and even use prescriptive analytic techniques to suggest next steps that a person can take.

We must also begin to view AI not only as reasoning about business data, but increasingly as being applied to shape the experience itself. Dynamic, modular interfaces will emerge with sophisticated algorithms that decide how to best arrange and present the elements of the experience. The interfaces will predict user intent, interact with the user to gather information, and construct highly relevant experiences that drive productivity.

Digital technologies will continue to evolve. No matter how sophisticated a technology gets, however, it will only be truly successful when paired with a smart experience that makes it usable by people.