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PREPARE FOR THE NEW DRONE DATA WAVE

Companies are turning drones into a competitive advantage

Guillaume Thibault and Georges Aoude

Armed with an array of sensors, commercial drones are about to become a new source for digital information. We expect the drone market to surge to nearly \$7 billion by 2020 globally, driven by regulatory clarification, continuously decreasing component costs, and – most important – ongoing innovation that connects drone capabilities to big-data analytics.

Leaders across a spectrum of industries are already availing themselves of drone-based data. In the oil industry, for example, what used to be weeks of inspection work now takes just days, thanks to drone-based thermal imaging and gas “sniffer” technology to inspect oil rigs and pipelines. Sky Futures, a third-party drone services company that specializes in such inspections, works with oil companies, such as BP, Shell, Statoil, and Conoco Phillips, and

has raised \$9.5 million in investment capital in just the past year.

In transportation, American railroad BNSF is partnering with the Federal Aviation Administration to test drones for remote track and bridge inspection and air quality monitoring. Network Rail in the United Kingdom is using drones as part of its ORBIS project to digitize the country’s rail network in 3D, to enable better planning of track maintenance and renewal. Airlines Easyjet and Lufthansa have adopted drones as a tool for aircraft inspections.

Other industries are being persuaded by the cost and safety benefits of drone-based data as well. Mining giant Rio Tinto is using drones to survey equipment and mining pits in Western Australia. Heavy machinery company Caterpillar

DRONE DATA UPDATE

SENSOR-LADEN DRONES PROVIDE NEW DATA-GATHERING OPTIONS

ELECTROMAGNETIC SPECTRUM – NOT TO SCALE



Lidar (light imaging and radar) can be used for topography, cubature analysis, 3D modeling.

Multispectral/hyperspectral sensor uses include detecting agricultural disease and plant/water analysis.

Near infrared can be used for vegetation analysis.

Thermal infrared uses include analysis of water stress and building thermography.

Visual photos/video can be used for cartography, topography, 3D modeling.

Terahertz imaging can be used for non-destructive materials analysis.

Shorter wavelength (Higher frequency, higher energy)

Longer wavelength (Lower frequency, lower energy)



Source: Oliver Wyman analysis

is reportedly exploring the use of drones for fleet vehicle management in the field, while drones are the cornerstone of Komatsu's "Smart Construction" service, which can fully automate bulldozers and excavators. And one of retail's largest players, Walmart, is testing how drones could help improve warehouse inventory management.

The multiplying possibilities of drone-based data could inspire across-the-board alterations in data gathering strategies, particularly if such changes lead to cost savings, improved safety, and enhanced analytics. For example, savings are to be had in analysis of inventory stockpiles, thermal imaging of pipelines and rail lines, three-dimensional modeling of insurance claims, and non-destructive terahertz imaging for buildings. Soon, it might be worthwhile for many companies to check whether drone-based data could add value – either to optimize current operations or offer new avenues for growth.

If a company can identify potential benefits, it can then consider whether to consolidate drone program development across multiple business units or subsidiaries, so as to concentrate investment dollars and strengthen data analytics. In addition, organizations that decide to invest in drones may need to adjust their data architectures and processes.

Businesses also will need to determine whether to run their own drones or outsource. Factors such as investment horizon, need for data security, and desired development speed will influence this choice. A company might opt for in-house drone operation and data analysis if it is concerned about proprietary issues or security, is willing to make a substantial up-front investment, and wants to take a "learn by doing" approach. As an example, French railway operator SNCF is using an internal drone program to enhance safety and maintenance through network surveillance.

Outsourcing may make more sense, on the other hand, where data can be shared, or if a company wants to get a drone-based data program off the ground quickly and with less investment. Commercially qualified drone services firms offering multi-sensor data have sprung up in a number of industries already, and partnering with such firms is proving to be



a popular option. These partnerships are leading to new business ventures: Lufthansa Aerial Services inked a deal in January with drone maker DJI to develop specialized commercial unmanned aerial vehicle applications – starting with a pilot project for a wind turbine manufacturer.

Finally, whether they outsource or develop their drone teams in-house, organizations will need to develop internal capabilities for big-data analytics to make use of this new wealth of information. This will mean hiring the types of data scientists typically found at data-rich technology companies.

For many companies, drones are quickly becoming another component that must be considered in developing digitalization strategies. Backed by cloud services and big-data techniques, the unprecedented data gathering capabilities of drones have the potential to radically alter the competitive dynamics of the information landscape.

Guillaume Thibault is a partner in Oliver Wyman's Business Consumer Services and Manufacturing practices. **Georges Aoude** is an Oliver Wyman alumnus.

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