



Governance Insights Center

Technology series

Emerging technologies



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The Essential Eight technologies

Board byte: drones

Drones are starting to change how some companies do business. What should boards know?

Companies in certain industries are using, investing in or planning to invest in drones. As the market for drones and drone services grows, boards should understand the implications this technology might have on their company's strategy.



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Expecting a delivery? Soon, your packages, groceries and even your mail could be coming to your doorstep by drone. We've all heard about drones, the air-based, remote-controlled devices, becoming delivery vehicles. But delivery isn't the only thing drones can do. Drones are already starting to change how businesses operate – and this is happening today. Companies across industries are using them for inspection, monitoring, repair work and onsite security. They are also being used for real-time data collection.

And while delivery trucks may not be going away just yet, advancements in delivery services are expected to be big business for drones. Companies are beginning to test them for package and same-day food delivery. They're also being used to transport medicines and other lifesaving products. If they haven't yet, drones could soon change your company's strategy.

A growing market for drones

After analyzing more than 150 emerging technologies, PwC categorized drones as one of its [Essential Eight](#) technologies. Infrastructure, agriculture, security and media and entertainment are key industries for drone-enabled services. Spending is expected to pick up in other industries, including engineering and construction, power and utilities, mining and retail. Companies investing in drones expect cost savings, revenue growth and better decision-making from the analysis of data that drones collect.

In 2016, PwC estimated the total available market for drone-enabled services to be more than \$127 billion.



Source: PwC, Clarity from above: PwC global report on the commercial applications of drone technology, May 2016.



Drones in action today

Maintaining infrastructure up in the air – Inspecting and maintaining structures like wind turbines, bridges and even skyscrapers costs money and manpower – and it's dangerous. Right now, a standard wind turbine inspection costs about \$1,500 per tower.¹ The same inspection using a drone cuts the cost by around 50%.²

Analyzing farmland from the sky – In the agriculture industry, drones are being used for precision farming. They monitor crops, do soil and field analysis and even assess crop health. Some insurers are starting to use drones to help monitor areas ripe for natural disasters, such as floods, droughts and hurricanes.

Capturing video footage: Lights, camera, action! – Media and entertainment companies are using drones for aerial photography, filming and special effects. That video you saw of a volcano in Iceland erupting? Or the shots for Planet Earth II of animals living in treetops in the jungles of Costa Rica? Or how about the synchronized American flag display at the 2017 Super Bowl halftime show? All achieved through the use of drones.

Providing security: A flying system – Monitoring security fences, ports, airports, concerts and performances, banks and armored cars typically requires time and manpower. It can also be costly and even risky. Drones can hover and follow objects or people at a safe distance. And they can cover large areas faster than humans.

Predicted commercial application and market value*

Infrastructure

Monitoring investments, asset inventory and the need for maintenance



\$45.2bn

Agriculture

Analysis of soils and drainage, crop health assessment



\$32.4bn

Insurance

Support in claims settlement process, fraud detection



\$6.8bn

Entertainment & Media

Advertising, entertainment, aerial photography, and special effects



\$8.8bn

Security

Monitoring lines and sites, proactive response



\$10.5bn

* PwC's predictions of the value of current business services and labor that are likely to be replaced in the near future by drone-powered solutions.³



Trends in drone technology



Drones are changing the way companies do business – in all industries. Here are four trends we have identified that could impact your company's strategy.

What's next for drones?

As drones start working with other technologies – and other drones – more opportunities will develop. For example, using drones and 3D modeling software can help road and railway operators in the design phase. Working together, these technologies can provide precise geospatial data, limiting the need to readjust plans and designs and, ultimately, lowering costs.



Drones are becoming more automated. Drones are starting to fly by themselves without remotes, and some are able to climb, crawl and grab. These new capabilities will lead to new applications for drones and drone services.



Data gathering from drones will transform industries. The agriculture and infrastructure industries could be transformed by the ability to make decisions based on data collected by drones. Drones offer a lower-cost way to collect high-quality data in a way that wasn't available before.



Drone-powered solutions will replace certain business services and labor. While it may not happen for a while, drones may reduce or eliminate the need for inspection, delivery and dangerous maintenance.



Drone technology will be used with other technologies. As drones gain new artificial intelligence, data processing and analyzing, sensor and drone-to-drone networking capabilities, they will be able to work in tandem with robots, 3D printing and other technologies, as well as other drones – allowing for greater efficiencies and opportunities.



In June 2016, the US Federal Aviation Administration cleared a path for commercial drone use, establishing safe-use rules that include airspace, speed, pilot certification and other guidelines for operators.

Adoption benefits and barriers

As with any new technology, companies and boards need to understand the pros and cons of adoption. The benefits of using drones include improved efficiencies, increased accuracy, accelerated decision-making with faster and more data, reduction of maintenance costs and lower labor costs.

But there are also challenges that might impact a company's decision to use drones. Privacy issues, bandwidth availability and capacity constraints are just some of the hurdles. Companies also have to consider whether they can get insurance coverage and the impact of regulation if they want to use drones. Other challenges include the high costs of more sophisticated sensors and cameras, as well safety issues, such as the potential for crashes and the resulting liabilities from injuries and property damage.





Questions boards can ask management about drones

Boards will want to understand any opportunities drones may present for the company's strategy. What should boards discuss with management about how drones might be a strategic fit? Here are some questions boards can ask:

- ⊕ Can we use drones in any part of our business to replace expensive, time- and labor-intensive tasks, particularly those that are hazardous?
- ⊕ Have we thought about how we could use drones to collect data and what we might do with that data? Could it help in decision making? Would the data be valuable to our current or future customers? Could that data help us expand our business model or customer offerings?
- ⊕ How might drones fit with other emerging technologies we are investing in?
- ⊕ Have we assessed the related risks of drones, particularly the legal and regulatory aspects?
- ⊕ Have we considered all of the potential cyber risks or data privacy issues associated with drones and drone services?

Boards that understand how drones and other emerging technologies can impact their company's strategy can have more meaningful dialogue with management about the opportunities and related risks.

For more resources on what boards should know about the Essential Eight and digital transformation, go to our ***Technology hub: insights for corporate board members.***

Find additional resources on [drones](#) and emerging technologies on PwC's [Next in Tech hub](#) or PwC's [Drone Powered Solutions](#) site.

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Endnotes

1. PwC, *Clarity from above: PwC global report on the commercial applications of drone technology*, May 2016.
2. Ibid.
3. Ibid.

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