US plays catch-up in **the game of drones**

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The government is dragging its feet on unmanned aircraft while giants like Google innovate overseas

A human being must clamber up to check a wind turbine, or a manned helicopter needs to hover at low altitude. Likewise, flare stacks, which burn off gas, must be shut down for inspections. So many operations involving infrastructure require risky activities like scaling ladders or hanging off the bottom of bridges to monitor electric transmission lines.

Unmanned aerial vehicles, or UAVs, however, can perform these tasks faster, more cheaply and more safely. Also known as drones, these aircraft can fly 24 hours a day, accessing locations that planes or helicopters typically cannot reach, like congested cities.

Much media discussion has centred on whiz-bang delivery services like fast food drops or goods dispatched from warehouse companies. "I'd be less excited about getting pizza five minutes faster than about breakthroughs like distributing vaccines to remote areas," says Matthew Bieschke, president UAS America Fund for NEXA Capital Partners.

But do not overlook a revolutionary factor for creating real economic value in the long term: organisations will replace many manned vehicles with small, agile low-altitude drones for multiple functions, to use as business tools around their plants.

A plea for common sense

We are not there yet. The Federal Aviation Administration continues to impose burdensome and outdated regulations, and many industries, such as agriculture and energy, are itching to see the agency speed up its rules to govern UAV standards. Although the FAA was expected to publish guidelines for small UAVs by the end of 2014, that date came and went. The multi-year process was launched five years ago when the rule-making committee initially reported its recommendations. It is likely to drag on another two or three years before regulations are finalised.

Meanwhile, outside America, other countries have accelerated the pace. Canada, the UK, France and Australia are already operating under defined rules. Since American companies are still restricted on home soil, some are innovating research and development overseas, like Google in Australia and Amazon in the UK.

> "Once the door is fully open, the vast range of applications will put billions of dollars in play

Last spring, at least a new line was drawn in the sand. Until then the FAA had allowed drones to be flown only by hobbyists for recreational use, by public entities, including local police and sheriffs, by universities for research and by national government security agencies.

Finally, in May, under political pressure, the FAA announced it would entertain petitions for exemptions to authorise drone use for commercial purposes; speed, weight and size would be the operative safety determinants.

Petitions flooded in – now amounting to over 300 – and in September the FAA began to issue exemptions, albeit at a snail's pace. By late January the agency had granted only 16 permits.

"The door has been cracked, but is not yet wide open," observes E Tazewell Ellett, chair of the Unmanned Aircraft Systems Group at law firm Hogan Lovells, and former FAA chief counsel.

"The next step is for the FAA to sensibly tailor unmanned aircraft systems regulations to the safety needs of the particular types of systems," Ellett adds.

He favours a proactive approach to approvals for drones operating below 400 feet, assuming they incorporate sophisticated safety protections and fly well away from populated areas, airports or sensitive facilities. He also believes that requiring a private pilot certificate for the piloting of very small drones at low altitudes far away from manned aircraft is not necessary for safety, "which would be better served by focusing on training the pilots in the operation of the actual drone they are going to fly, starting with the manufacturer's training program".

Commercial opportunities

Once the FAA fully opens the door, the range of potential applications will be vast, with billions of dollars in play. One way to illustrate the scope is to glance at the diversity of petitions filed for the first wave of exemptions.

Uses run the gamut from video photography of real estate, entertainment film-making, wedding, corporate and sporting events to news gathering, insurance documentation, forestry, wildlife preservation and archeology. Mining exploration, seeding and fertiliser applications swell the pile, as do construction site security and systems for tackling power outages.

Bieschke's UAS Fund is focusing "over the horizon," on providing infrastructure for this brave new world destined to take off once regulation permits. He anticipates the need for software, hardware and towers to direct traffic control.

We cannot have hundreds of aircraft flying around in closed systems without organisation. "We need consistency and interoperability, integrating all the systems with the FAA," he says.

"The business will eventually be massive," says Ellett, who suggests it would greatly boost the market for the FAA to establish "graduated regulation for different categories" of UAVs, rather than a one-size-fits-all approach.

In 25 years, research shows, no injury has resulted from an aircraft hitting a medium sized bird (defined as a four-pound seagull). So a small UAV carrying a 16-ounce pizza seems safe enough.

KEY TAKEAWAY

American industries keenly await regulation needed to unlock the billion dollar drone market. Applications will make commercial and industrial activities faster, cheaper and safer.