

How drones can help us win the war against Covid-19

Drones can be useful in the battle against Covid-19 if it is used correctly. China's healthcare industry is an example of the successful implementation of drones against the virus.



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The Department of Transport (Dot) has put regulations in place against the flying of drones in terms of the Disaster Management Act. The regulations form part of the government's national lockdown to prevent the spread of the virus that has infected thousands of South Africans.

Governments and industries around the globe have found themselves in a position where they have to adapt to the new realities and implement innovative strategies of operating whilst keeping their workers at a safe distance to prevent transmission. The use of drones by the Chinese government is one such innovative strategy.

The Chinese government has been piloting ways to incorporate drones into their response to Covid-19, namely for:

1. Aerial spray and disinfection;
2. Transport of samples; and
3. Drone delivery for essential goods.

The co-founder of agricultural drone company XAG stated that using drones which were originally designed to spray pesticides in the agricultural industry have been adapted for aerial spray of disinfectant for use in China. He confirmed that aerial spray of disinfectant can be 50 times more efficient than people spraying.

The benefit of using drones to transport medical samples is that it can reduce unnecessary human contact and therefore, the transmission of the virus significantly. The samples are also delivered much faster via air compared to road travel, which accelerates the feedback process for critical tests needed by medical workers and patients.

Lastly, the utilisation of drones for the delivery of consumer goods such as food and basic necessities, makes it easier for citizens to comply with the regulations regarding social distancing and limiting human contact.

In order to circumvent the obvious safety risks that are associated with the use of drones, such as injuring people or damaging property, the Municipal Governments in China, its health department, major drone company Antwork and the Civil Aviation Administration of China worked in collaboration to approve routes and ensure proper safety measures were implemented.

Drones in South Africa and our regulatory framework

The question is whether South Africa could successfully utilise drones for similar functions in our war against Covid-19 and whether our regulatory framework allows for it.

The Eighth Amendment to the Civil Aviation Regulations ("the Regulations") was introduced in 2015 and governs, in Part 101, the operation of Remotely Piloted Aircraft Systems ("RPAS"), described in the Regulations as an unmanned aircraft which is piloted from a remote pilot station, which includes drones.

There is a distinction in the Regulations between private use versus commercial use of RPAS. If drones are to be used for the three functions detailed above, this falls under the commercial use category.

An RPA will only be allowed to operate for commercial reasons if:

- it has been issued with a letter of approval by the Director of Civil Aviation;
- it has been issued with a certificate of registration by the Director of Civil Aviation;
- an RPAS Operating Certificate ("ROC") has been issued; and
- an air services licence has been issued in terms of the Air Services Licensing Act, 1990.

In terms of the regulations, a ROC holder is required, inter alia, to:

1. develop an operations manual containing all the information required to demonstrate how such operator will ensure compliance with the regulations and how safety standards will be applied and achieved during such operations;
2. establish a record-keeping that allows adequate storage and reliable traceability of all activities developed;
3. establish a safety management system commensurate with the size of the organisation or entity;
4. conduct security checks on personnel employed in deployment, ensure the RPA is protected from personal interference, ensure that security awareness training is conducted.

Furthermore, the operator is required to obtain an RPA pilot's licence. In order to acquire the licence, it requires the pilot to undergo medical certification, certification of radiotelephony, English proficiency, flight training, and passing both a

theoretical examination and skills test. The licence is valid for 24 months and applicants must be over 18 years old. The licence holder will have to undergo a revalidation check 90 days prior to the expiry of the licence in order to renew it.

In terms of regulation 101.05.4 of Part 101 of the Regulations, it provides that –

"No object or substance shall be released, dispensed, dropped, delivered or deployed from an RPA except by the holder of an ROC and as approved by the Director in the operators' operations manual".

In order for a company to use drones for aerial spray of disinfectant, sample transport or consumer delivery in the time of Covid-19, it would be required that the holder of an ROC includes this plan in the operators' operations manual, which has to be approved by the Director of Civil Aviation.

As is apparent from the above, the regulations for commercial use of a drone are extremely stringent with many approvals and oversight required by the Civil Aviation Authority. However, the regulations are strict in order to ensure safety, top-notch security and adequate training, in order to protect against the potential infringement of people's human rights, such as privacy, dignity and safety. Furthermore, if the regulations were relaxed, it would create an opportunity for abuse and for criminals to use drones for illegal activity.

Is South Africa ready?

The question remains whether South Africa is equipped and capable to implement drone technologies for delivery services in the health industry.

In May 2019, the South African National Blood Service (SANBS) launched a new drone-based blood delivery system with a purpose to help deliver blood to people in rural areas. Its purpose is to reduce the cost and time it takes to deliver blood when it's needed quickly. The programme is in the process of being piloted in Eastern Cape, Northern Cape and KwaZulu Natal. The long-term prospects of the programme are to see it expanded on a national scale and make drone technology the standard in the healthcare system in South Africa.

In relation to obtaining Civil Aviation Authority approval, SANBS has stated that:

"The CAA is very strict about whom they give the licence to, and everyone has to go through the process. It's not just about being granted a licence, it's also about going through the right regulatory procedures and certifications of compliance. Once this has been achieved, we will see the real impact of our return on investment by the number of lives saved."

Some nine months later after the launch of the project, it appears as though the SANBS has not been granted the licence to operate, as yet.

As is apparent from SANBS's drone-based blood delivery program, South Africa's healthcare industry is fully capable of using drones for aerial sprays of disinfectant, to transport medical samples and to deliver essential goods in the time of the Covid-19 crisis. The real issue seems to lie in the time in which it takes for the Civil Aviation Authority to grant the requisite licence.

In a national disaster situation where time is of the essence, additional formalities and authorisations to comply with the Regulations, together with the hefty cost restraints, may act as hindrances to the swift and successful utilisation of this technology. But if it had the appetite, the Civil Aviation Authority could jump on the "publishing special time-barred regulations for the duration of the state of national disaster" bandwagon and expedite this process by either lobbying the Minister of Transport to issue a directive under the Disaster Management Act; or by publishing its own set of regulations under the Civil Aviation Act.

The rapidity at which the state has otherwise acted under the powers granted to it by the Disaster Management Act has led to South Africa emerging as a leader in the war against Covid-19. Depending on how the situation unfolds, having an

arsenal of cutting edge, custom built disinfectant drones could prove useful at maintaining South Africa's number 1 position
– or it could be the beginning of Skynet's master plan/

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