

Defence Policy Review Roundtable, Vancouver
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1. The conventional concept of a **‘battlefield’** as a bounded space with a linear geometry started to give way during the First World War; it was accelerated by the extensive use of air power during the Second World War and its demise was confirmed by the US-led ‘war without fronts’ in Vietnam, Laos and Cambodia in the 1960s and 70s.

2. During that same period – and as part of the same process – **civilians** have been increasingly caught up in military and paramilitary violence: modern war has long been ‘war amongst the people’.

3. These twin developments have intensified in the early twenty-first century, and in consequence advanced militaries increasingly rely on enhanced capabilities for:

(a) **speed and mobility**: They are typically engaged in liquid, ‘just-in-time’ military operations conducted in fluid, discontinuous battle spaces;

(b) **real-time intelligence, surveillance and reconnaissance (ISR)**: These new combat geometries require the identification and tracking of highly mobile targets, and any use of deadly force against them is now expected to be accomplished with minimum civilian casualties. That imperative has been strengthened because military operations are now subject to increased public scrutiny through digital social media, and military lawyers are now centrally involved in monitoring and advising the targeting process to conform with international humanitarian law and command-set Rules of Engagement.

4. To meet these twin capabilities there has been an escalating demand for the extensive deployment of **remotely piloted aerial vehicles** (in 2012 the GAO estimated that at least 76 states possessed drones of varying sizes and capabilities, and since then a number of insurgent and/or terrorist groups have used small COTS drones).

5. The larger military versions respond to the demands outlined above in two ways:

(a) They provide an **enhanced ISR capability**: the larger platforms have extended dwell times (up to 36 hours, achieved by crews in the ground control stations rotating through 8-12 hour shifts) and can provide high definition full-motion video feeds, which are distributed through a network to commanders at multiple locations and to image analysts and military lawyers.

(b) When armed, they achieve a fusion between sensor and shooter that can dramatically **compress the ‘kill-chain’** and allow a rapid response to fleeting or emergent targets of opportunity.

It is thus not surprising that the Defence Policy Review should ask questions about future investment in ‘unmanned systems’ (though they are far from being “unmanned” but involve extensive personnel). But neither of these two provisions is straightforward.

6. Enhanced ISR from remote platforms does not produce a transparent battle space, and – for all the rhetoric about avoiding ‘boots on the ground’ – it is not a substitute for human intelligence. There are also significant technical limitations: the video feeds place inordinate demands on satellite bandwidth and even the US relies on contracts with commercial satellite providers; the quality and consistency of the image stream varies from station to station, and is often fuzzy, blurred and indistinct; and the (silent) images require careful interpretation to distinguish between an insurgent planting an IED and a farmer repairing a ditch. In short, the use of remote platforms requires **high levels of investment in communications infrastructure and advanced analytical capabilities**.

7. Until recently, the main role of remote platforms has been the provision of ISR and the co-ordination of strikes carried out from other, conventional platforms: in Afghanistan between 2009-2011 RPAs were responsible for only 5 per cent of weapons released by the USAF. But this doubled to 10 per cent in 2012, and in 2015 (following the draw-down) surged to 56 per cent. The direct use of lethal force typically takes two forms: close air support for ground operations, and so-called targeted killing of individuals.

8. The likelihood of civilian casualties is increased when **close air support** is provided to ‘troops in contact’ with an enemy, and that increases when strikes are carried out by RPAs: in Afghanistan Larry Lewis (2014) found that ‘unmanned platforms are ten times more likely to cause civilian casualties than manned platforms’. This is *not* because the feeds ‘reduce war to a videogame’ – a lazy and ill-informed jibe – but it may be that crews in ground control stations, who typically insist that they are so immersed in events they feel not thousands of miles away but just eighteen inches (the distance from eye to screen), compensate for their physical remoteness by interpreting innocent actions and actors as hostile and thus ‘lean forward’ to protect troops on the ground. The issue is not the remoteness of the killing – distance is not a moral absolute – but, on the contrary, the highly selective *intimacy* achieved through the real-time video feeds and radio communications.

9. The use of **targeted killing** – now carried out by Israel, the United States and the United Kingdom – has been the subject of sustained and informed criticism on political, legal and ethical grounds. Canada’s interests would be best served by making an explicit commitment to refrain from any such program of extra-judicial killing.

10. There are also significant **geographical limitations** to existing unmanned systems. Their **physical range is constrained** – they can be controlled by Ku-band satellite communications and fiber-link cables from thousands of miles away but must be based close to the target areas, which means that launch and recovery crews and maintenance crews have to be forward deployed; for this reason, too, the US requires four aircraft to constitute a Combat Air Patrol capable of maintaining ISR over a target area 24/7. In their present form, they are also **highly vulnerable to weather** – not just storms but even cloud... And they are slow and easy to shoot down, so that they **can only be used in uncontested air space**: they cannot be used in Anti-access/area denial environments.