

# Drone Panic! On Representations of the Personal Drone by Australian Mainstream Media

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## Abstract

When considering personal drones as a new media tool with obvious digital media applications or as a next generation communication technology, at the time of writing (December 2015) there exists both definitional and conceptual ambiguity surrounding the identity and representation of personal drone use. When amplified by the mainstream media this leads to ‘panics’, both actual and perceived. This paper will explore the panics and concerns surrounding the representation of these revolutionary machines by the Australian mainstream media in order to see the entwined narratives within, and examine whether these concerns are founded or perceived; new concerns, or old concerns encountering new technologies.

Keywords: Drone, Australian media, broadcast

Chris Anderson invokes the computer industry as an analogy when he says that we are now at the personal computer moment on the drone evolutionary scale, with the technologies continuing to evolve (Anderson, 2013). Similar to the personal computer, drones – often hybridised with digital video cameras – are readily available, affordable, and have captured the consumer’s imagination by the possibilities and potentials of use. McCosker suggests that drones have entered the popular and regulatory discourse as ‘a thing of risk and opportunity, an object of birth fear and desire’ (McCosker, 2015), and drones are being studied as a culturally significant communication technology: the personal drone as a new ontology of social machine.

Gerard Goggin in his 2012 research into the cultural significance of another significant communication technology, the mobile phone – an important precursor technology from which personal drones have evolved – examined the way mobile phone technologies were represented. Goggin makes reference to ‘moral panics’ in which concerns around anti-social or aberrant use of these technologies is portrayed and amplified by the mainstream media, creating what Wikipedia defines as “a feeling of fear spread among a large number of people that some evil threatens the well-being of society”. In the case of mobile phones, anti-social or aberrant use included sexting, texting, up-skirting and in the case of drones; privacy, weaponisation and surveillance. Goggin argues that to understand a cultural object, the way that object is represented is one aspect that needs to be looked at, and that one persistent feature of the representation of technologies are panics. Goggin states that useful insights into the object of societal discussion are obtained by drawing attention to the ‘gulf between the insider experience of the practices and customs in these subcultures as opposed to the menace or danger it was

thought to hold to others' (Goggin, 2006); or, the gulf between the actual and perceived. Peter Singer says drones are revolutionary technologies requiring us to think about the inconceivable (Singer, 2013) as we grapple with their rapid technological advance. The rapid pace of this evolution is one of the factors contributing to the definitional and conceptual ambiguity still surrounding drones, which is further magnified by the fact that for many – particularly in Western cultures – drones are still only a conceptual or non-experienced technology (Jablonowski, 2015). This means that drone technologies and their associated practitioner subcultures and the diverse contexts of use of these technologies often remain unknown, unacknowledged or non-experienced. This skews the incumbent narratives (Jablonowski, 2015) or memes (Rothstein, 2015) that are entwined with the representation of drones and conflicts with the identity and experience of personal drone technologies and practitioners – Goggin's gulf.

Representational and identity issues around drones abound and McCosker uses the lack of standard nomenclature across regulatory bodies, manufacturers and user organisations as an example of the competing conceptual terrain – or multiplicity of narratives – in which drones operate (McCosker, 2015). The media's representation of these technologies amplifies these memes or narratives by not being selective or specific with its choice of language. The use of the term 'drone' as a catch-all phrase (Friese, 2016) as opposed to preferred industry nomenclature such as UAV, RPAS blurs the function of the technology in question and muddies perceived concerns or panics with actual concerns.

The following article will look at representations of personal drone panics by Australian mainstream media as both examples of and contributing to the contested conceptual terrain, and will attempt to deconstruct some of the incumbent narratives of the dominant tropes in order to facilitate a fresh perspective. The main thematic issues behind drone panics can be grouped into four main tropes which are safety, privacy and surveillance, and using drones for nefarious purpose.

Within all of these themes of concern are entwined ethical and regulatory narratives; questions around the moral nature of technology; and a mixture of both perceived as well as actual concerns, where perceived concerns are subjective, mutable and temporal; actual concerns being physical and tangible. By examining these panics using examples from the Australian mainstream media the author will attempt to tease out the concerns and incumbent narratives, memes and tropes and compare them to actuality, identity versus representation, to see whether they stand up to scrutiny, to explore the gulf between insider experience and representation to see if on occasion they converge.

## SAFETY PANICS

Safety panics are neither new nor constrained to only drone technologies. The laws of physics dictate that safety concerns are quite genuine, with obvious panics about drones crashing into the ground or drones crashing into another object whilst in the air. Safety panics are an actual physical issue whereas other categories of panics could be deemed perceptual or subjective.

The prime concern behind safety panics, whereby Newtonian laws of physics dictate that what goes up must come down, is the concern surrounding injury or damage caused to persons or objects on the ground due to a falling drone. The common cause being techno-failure or mechanical fault, and ‘accounts of drone technology failure are common and reflected in sensationalist headlines’ (McCosker, 2015)

The comparatively restrained headline from the Australian Broadcast Corporation (ABC) of ‘triathlete injured as drone filming race falls to ground’ (ABC News, 2014a) gives an accurate synopsis of the content of the story in which a West Australian triathlete competitor was allegedly hit by a drone, possibly a DJI ‘Flame Wheel’ F550. Some initial conflicting accounts were reported as to whether the victim was actually struck, or was instead just startled by the drone and fell. The operator engaged to cover the event is at least in breach of CASA’s 30-meter buffer guidelines as stated in current regulations pertaining to the use of unmanned aerial vehicles (UAV’s) – or their preferred term of Remotely Piloted Aircraft Systems (RPAS) – and possibly in breach of CASA regulations prohibiting the undertaking of commercial operation without a licence. In this instance the drone operator initially queried whether the falling drone actually struck the competitor, before then claiming he was “hacked”. Technically hacking the control link to a drone is possible, however due to the sophisticated technology required compounded by the fact that the drone was operating in geographically remote Geraldton in Western Australia, the hacking scenario is highly unlikely, and this excuse and the sensationalist media coverage accompanying it was the subject of much scorn and ridicule across online drone culture forums closely following the unfolding story (Buscemi, 2014). In an attempt to avoid personal responsibility, liability and as a distraction from the clear breeches of current CASA regulations the operator tries to substitute uncertainty and nefarious use panics – the trope of drones being hijacked by anonymous hackers, another powerful meme that resonates with the mass media, in an opportunistic attempt to deflect from his responsibility and contribution to the incident. Interestingly, this approach actually worked, with alleged interference from the race timing systems interfering with the drone control link being found as the cause for this incident, rather than the more colourful hacker-based defense.

In a follow-up to the April story with the headline ‘Drone operator fined after UAV crashed into Geraldton triathlete’ (ABC News, 2014b) the Commonwealth Director of Public Prosecutions chose not to proceed with a charge against the operator issuing a statement that "... The evidence indicated that the cause of the incident was not the actions of the operator but rather radio interference to the UAV [Unmanned Aerial Vehicle] caused by the event's timing device ..." and the matter handed over to CASA. CASA fined the operator \$1,700 for flying the drone within 30 metres of people but interestingly chose not to pursue the matter of operating the drone for commercial gain without a licence. This example raises the issue of personal responsibility of the pilot, who should be factoring techno-failure into risk assessments and risk mitigation strategies underpinning appropriate choice of location for safe operation of a drone, especially as he experienced and reported similar techno-failure phenomena on earlier flights that same day. This particular incident doesn’t reflect so much the regulatory challenges faced when attempting to integrate unmanned aerial systems into controlled airspace, but does serve as an example of the drone panic arising caused by legislative

and regulatory inconsistency in the application of current rules and guidelines, the gulf between perception and experience, amplified by media coverage. The fact that the perceived trope of the drone being jammed was found plausible in this scenario again reinforces the lack of experiential understanding of these technologies by authorities.

The second category of safety panic involves the risks and concerns of sharing air space with drones, specifically sharing airspace with unmanned vehicles, and the challenge of controlling increasingly crowded airspace to avoid the possibility of collision – the fear of drones crashing into other objects such as a plane or another drone whilst airborne. These panics are again amplified by the mainstream media with many sensationalist headlines reporting on such incidents and near-misses – usually involving drones and large commercial passenger aircraft on their landing approach or during take-off. These stories and headlines spike annually around the festive season with predictions of thousands more drones taking to the skies (News.com, 2015) (SBS News, 2014), and there are also regular reports of close calls and near misses between manned aircraft and unmanned drones in controlled airspace, however to date no actual collisions (ABC News, 2014).

Newtonian laws of physics suggest safety concerns in regards to small unmanned aerial vehicles are legitimate, and risk assessment research to date (Clothier) has recommended the segregation of drones by weight, with the lighter craft deemed to pose significantly less risk from a kinetic energy perspective. In Australia, CASA has been taking a pragmatic stance proposing new regulation that segregates drones by weight class, with drones under 2kg essentially being deregulated and bound by common sense rules of keeping them below a certain height (400 feet), at least 30m away from persons or buildings not involved with the flight operation, within visual line of sight during daylight hours and not to be operated over populous areas or closer than 5km to an airport (Civil Aviation Safety Regulations 1998 (Cth) reg 101.2). The amended regulations are yet to be enacted, and current regulations still state that to operate a drone for commercial purposes requires CASA certification by obtaining a Remotely Piloted Aircraft Operators Certificate. Despite these measures, steps taken so far by aviation authorities to define the boundaries of usage and operation for drones still raises concerns and provokes debate about the kinds of experiences that are enfolded into the terms of those regulations (McCosker, 2015).

I am undertaking longitudinal ethnographic research into the personal drone community of practice based in Melbourne, Australia, and the following excerpt from a field interview with a research participant referred to as the name 'Rich', serves to illustrate the prevailing attitude regarding the current regulatory framework applicable to drones from within this fledgling community;

'I think the current regulations is antiquated, it's old, it's out-dated. Um, back then six months ago, drones were never really heard of, or two-fifty fliers, quads in general, and so the laws are slow to catch-up. But you see in other countries trying to change and trying to sort of move along with the times, and I think it'll head along that way, but I think that it's just going to take time and persistence.' (Richard R. 2015, pers. comm. 25 April)

The drone community are acutely aware of these safety panics and are taking active steps to mitigate risks associated with falling drones through a combination of regulation, training, awareness and advances in technology. Techno-failure is perceived by both practitioners and the mainstream media as an actual concern, a rare instance where the gulf between insider experience and the menace or danger it holds to others, converges. In response, manufacturers are using geo-fencing techniques to ‘hard wire’ no-fly zones into the actual on-board autopilots, such as preventing operation within 5km of an airport or other sensitive sites (for example, in China the designation of Tiananmen Square as a DJI geo-fenced no-fly zone). To reduce the potential kinetic damage caused by falling drones, manufacturers are constructing drones out of frangible components and making use of materials such as EPO or EPP, both types of light-weight yet durable polystyrene foam. Attempts of techno-redundancy are also being explored, with drones maintaining the ability to remain airborne even after losing one or more engines; equipping drones with parachutes as a fail-safe; greater use of prop guards or engine cut-outs to reduce injury through rotor strike; return to home feature if control link lost; automatic emergency landing when batteries reach reserve levels; greater situational awareness and sense-and-avoid technology using real-time onboard image analysis in development; miniaturisation of transponder technologies to ‘announce’ or broadcast the presence of drones to both other aircraft and air traffic control; and finally regulatory restrictions around both weight classes and the commercial use of drones.

The personal drone community of practice is essentially a self-regulating body and fully cognisant that public perception – positive public perception – is critical to their future and as such safe and responsible operation of drones is paramount with the onus of responsibility and liability firmly resting with the pilot. There is consensus within the drone community that a falling or runaway drone is not a good thing, even if the motivation is as self-interested as protecting an expensive piece of sophisticated hardware as opposed to any more altruistic motivation such as protecting the general public or protecting the reputation of a fledgling community that is actively avoiding negative PR in an attempt to control their own narrative.

## PRIVACY AND SURVEILLANCE PANICS

Commercial, off-the-shelf personal drones hybridised with small form-factor digital cameras or other sensors are being used for an increasing range of applications both intended and unintended by their original designers, with new applications of use continuing to emerge. Research is being undertaken that examines ‘the regulatory struggles that take aim at drones as unruly aerial objects with the capacity for privacy-invasive imaging’ (McCosker, 2015) and even a cursory Internet search will reveal that there is a wealth of commentary in the media on drones and privacy concerns.

Panics around privacy have singled out drones for special attention. A 2014 House of Representatives Standing Committee on Social Policy and Legal Affairs report entitled *Eyes in the Sky* called for the Government to introduce new legislation to protect against privacy-invasive technologies, including remotely piloted aircraft (House of Representatives, 2014). Dr Reece Clothier, president of the Australian Association of

Unmanned Systems (AAUS), argues that the lack of regulation protecting privacy is not just an issue specific to drones (Clothier, 2015) but many technologies ubiquitous to society such as the camera and microphone equipped smart phones, laptop and tablet devices; vehicle based dash cams, SatNavs and E-tags; geo-tagged photos with embedded date, location and time data; and next generation wearables such as Google Glass or the many biometric tracking devices such as Fitbits, all tracking and recording both location and other personal information. Recent media revelations about the role of government agencies and data collection and retention also put the drone threat into context. We already live in cities riddled with surveillance devices including ubiquitous security cameras, number plate and facial recognition technologies and persistent satellite vision, and willingly carry a GPS enabled smartphone announcing ones presence and location to nearby mobile phone towers in order to keep you connected. Perhaps Marshal McLuhan put it best when he inferred that there is no privacy in the global village (McLuhan & Powers, 1992).

Reece Clothier uses the following example regarding surveillance panics with the headline ‘Mt Martha woman snapped sunbaking in g-string by real estate drone’ (Herald Sun, 2014a) whereby a real estate agency taking aerial photographs to be used on an Estate Board advertising a property inadvertently captured a neighbour sunbaking in an adjacent property. The offending billboard was removed as soon as the accidental inclusion was reported, and again sparked debate on the use of camera equipped drones and whether aerial photographers have an obligation to advise persons or householders nearby who may be affected.

In addition to concerns around privacy, the moral panics around drones and surveillance have obvious roots in the military application of drone technologies, from the ‘tropes of military drone vision and the sense of weaponised sight’ (McCosker, 2015) and with the media etching images into the drone meme of grainy night vision footage of the view-from-above of an object exploding in the kill box surrounded by clinical telemetry controlled by anonymous pilots on another continent – this is a vastly different scenario to the realm of consumer drones equipped with a wide angle lens camera capturing pre-programmed ‘dronies’ via a mobile-phone ‘app’, using face detection and real time image tracking to keep the subject in shot (Neurala Inc, 2016), tracking GPS tags to film action sport activities (Soloshot, 2016). or building virtual 3D models of real terrain and buildings from drone acquired imagery and cloud based software processing (Pix4D, 2016).

When is surveillance not surveillance? Perception – fed by media depictions – is key, as recently there have been media reports re-contextualising the notion of drone surveillance as a positive thing, especially if the drones are depicted as being equipped with ‘sensors’ as opposed to cameras. Multi-spectral sensors looking into the ultra violet and infrared ends of the spectrum, thermal sensors and LIDAR – a surveying technology that measures distance by illuminating a target with a laser – don’t raise the same panics as mere optical cameras, and conversely are depicted in a positive manner when associated with a range of ‘good’ applications from crop *monitoring*, asset *inspection*, *mapping* and *surveying*. The term *surveillance* is represented in panics as bad or a negative applications of drone technologies, whereas monitoring, inspecting, detection or surveying are perceived as good or positive applications highlighting what

a difference terminology makes to the incumbent narratives and associated panics.

An example of positive media representations include the proposed use of camera equipped drones to monitor beaches in New South Wales for sharks. Andrew Leeson's short article "Drone technology can monitor sharks" (Leeson, 2015) refers to drones being developed in Melbourne that are specifically programmed to detect sharks, with this detection approach allegedly allowing greater coverage than that offered by conventional manned spotting planes. However, imagine the panics if the same drone with the same camera was referred to as conducting surveillance on northern New South Wales beaches? Based on the Mt Martha g-string incident the media amplification and associated panic would have been immense. Falling into the same category of benign or acceptable surveillance is detection of bushfire 'hotspots' using infrared and visible sensors on aerial drone platforms (Metropolitan Fire Brigade, 2013), monitoring of crops using multi-spectral sensors to detect disease and salinity, etc. (Gray, 2016); inspection of assets such as pipelines, dams and high voltage power lines (Heber, 2015); surveying (as opposed to surveilling) large-scale construction projects (Stewart, 2015) and when used in search and rescue operations (Lufkin, 2016).

Rothstein suggests that to improve the overall narrative or to shift the incumbent narratives to more positive or accurate representations, a process of amplifying memes needs to occur (Rothstein, 2015). The community of practice that I've been documenting in Melbourne Australia as part of a longitudinal ethnographic research project into the rise and significance of personal drone culture have attempted to address the mismatch between representation and identity by controlling their own media events, with mixed results. In a June 2015 event in a disused warehouse in Melbourne's western suburbs a group of FPV quad racers - "First Person View" where pilots use a drone mounted camera transmitting a signal back to wearable goggles or a small portable screen to control and race their drone – put on a race day attended by crews from ABC's Lateline, numerous online and print journalists and myself as documentary maker and researcher in order to raise their public profile. Chad Nowak, who subsequently won the U.S. Drone Nationals in July 2015, was interviewed on the day and gave his perspective on the panic around surveillance and privacy in the context of personal drones:

' 'Drone' is a bit of a buzzword with a negative connotation to it ... A drone's an unmanned aerial vehicle. Most people know them as Predator drones which spy on people and drop bombs in Afghanistan ... In the US, people think they're going to be used to spy on them, but I guess the general public now knows them as drones, so it's been taken out of our hands ... these things weigh around 500g, make a noticeable whine when flying so we can't sneak up on people and they use fish eye lens so everything looks further away ... You can't see any detail at a distance, so they are not suited in any way to getting up to no good ... I liken the stigma attached to drones much like the fear of camera phones when they first came out last decade. At first everyone was worried about privacy issues but these days everyone has got one and people have forgotten about something that was never an issue in the first place ... I believe drones will be the same' (Farquhar, 2015).

Rich, confessed 'drone newbie' again recounts his first-hand experience:

‘... I get a lot of people coming up, sort of looking at what I’m doing and I sort of show them that they’re not scary, you can’t sneak up on people – they’re too noisy, and the camera footage isn’t all that great. So, it’s people’s perception of what they see on the news and everything else, to actually physically seeing it in front of them and going ‘oh, it’s not so scary after all’ ... (Richard R. 2015, pers. comm. 25 April)

The perceived drone panic with roots in the incumbent military narrative of being surveilled from afar holds little weight once personal drones become an experienced technology, and depending on the type of surveillance – perceived as either good or bad – media representation is on occasion positive. Amplification of this meme is now the challenge for the drone community of practice to continue to address.

## WEAPONISATION PANICS

Panics about the weaponisation of drones have become imposed upon the civilian drone narrative and are another case where the lack of consistent nomenclature leads to confusion, or rather, the lack of a qualifying adjective or descriptor when discussing drones – *agricultural* drone, *personal* drone, *military* drone – leads to a misconception as to the function or context of use of the technology in question. In response, consumer drone manufacturers such as DJI, China (“Phantom”, “Inspire”, “Spreading Wings”); Parrot SA, France (“Parrot AR.Drone”, “Bebop”, “eBee”, “eXom”) and 3D-Robotics, North America (“Iris”, “Solo”), are trying to differentiate their product by name as well as application of use from the military range of drone technologies manufactured by Boeing (“Condor”, “Dark Star”, “ScanEagle”, “Phantom Eye”), General Atomics (“Reaper”, “Predator”, “Predator Avenger”), Lockheed Martin (“Stalker”, “Desert Hawk”, “Fury”) and Northrop Grumman (“Fire Scout”, “Global Hawk”, “MQ-5B Hunter”).

In Ian McPhedran’s NewsCorp article, “The Australian government is about to spend \$300 million on self-piloted killer drones” (McPhedran, 2015), also referred to by the slightly less sensational headline “Reaper drones come to Australia”, he talks about the RAAF acquiring eight unmanned MQ-9 Reaper aircraft, made by the U.S. based General Atomics, and two ground stations. The drones cost about \$20 million dollars each when fully equipped. RAAF chief Air Marshal Geoff Brown said opponents of the armed drone concept were emotive and did not know what they were talking about. “I certainly don’t see any difference from dropping a bomb from a Reaper (unmanned drone) or an F-18 (manned combat fighter).” The article is riddled with amplified memes and incumbent narratives, with Air Marshal Brown seemingly oblivious to the current drone panics around the notion of unmanned weaponised systems and the public’s concern and confusion about fully autonomous weapons and the notion whereby humans are seemingly removed from the decision making loop, which is just not the case at present but is being debated in forums such as the United Nations (Gillespie, 2016).

Rich again elaborates on the public perception of drones and incumbent military narratives therein during his ANZAC day interviews with the author:

The ‘D’ word, it’s ... People perceive the drone as in like a combat sort of military role, but I find it’s just a quad-racer. People get mixed up: ‘oh, you mean a motorbike quad?’

‘Nah, nah – a flying quad; so sometimes it’s sorta’ I’ve gotta do a little bit of explaining on what it is, what I do and you know, and how safe it is, so ... it’s uh, ever since the, uh, last Iraq war it’s with the drone bombs and ... spy cameras and everything else ... It gets a bad rap ... yeah, it’s not good ...’ (Richard R. 2015, pers. comm. 25 April)

In addition to mainstream media, popular culture ranging from performance art (Sleeth, 2015) to installation art (Bridle, 2013) also reinforces the meme of the incumbent military narrative, maintaining or sustaining a dystopic view of drone technologies by refusing to acknowledge the full spectrum of use of these technologies, preferring instead – for valid political reasons – to focus on the military application of weaponised drones.

A recent take on this narrative is being espoused by ‘moral entrepreneurs’ – in this case a commercial lobby group with a vested interest in increased regulation of drone use as a mechanism to reduce competition by keeping new entrants out of the marketplace – has been promulgating the nightmarish and perhaps highly unlikely scenario of drone swarms being used to deliberately take out commercial aircraft, but the same concerns could have been made about model aircraft which have been flown by enthusiasts for decades with no reported terrorist incidents. Ironically the military is now actively exploring the notion of using swarms of cheap, small and expendable drones as a way of overwhelming enemy defence systems, a scenario where civilian drone panics are being actively embraced and pursued by the military, as described by David McNally in his article “On-demand 3D-printed drone swarms, already being tested by the US Military” (ARL Public Affairs, 2016) posted on the Official Homepage of the United States Army. Swarms of cheap, disposable 3D-printed drones combined with simple flocking and AI algorithms lead to visions of future air combat in which the behaviour of these drone swarms has more akin to the murmuration of starlings than combat as we currently know it (Steinman, 2016).

Weaponisation panics are actual concerns further compounded by the military buying in to mainstream media amplification of drone panics. In a cyclical manner the military are now concerned about swarms of small, cheap, disposable consumer-grade drones overwhelming defence systems. What started as a military technology that democratised into a consumer tool is now returning: the prodigal drone. What will this do to incumbent narratives or what new memes, concepts or panics will this then create?

## NEFARIOUS PURPOSE PANICS

It could be argued that there are no good technologies or bad technologies as such, rather it is the use to which the technology is applied, or how the application of the technology is perceived. As we have already established, drone technologies are no exception. Now that the technological genie is out of the bottle (Gibb, 2013), how these technologies are perceived is not only shaped by how they are used, but also as to how much weight these possibilities of use carry, or are given, in mainstream media representation.

One of the classic alleged nefarious uses of drones is summarised in the article “Man accused of using drone to try and drop off drugs into Melbourne Remand Centre”

(Landy, 2014). This story typifies the nefarious use of personal drones to smuggle contraband into jails, with numerous stories along these lines being reported from Australia, United States and Mexico. The Herald Sun article acknowledges that this nefarious use of drone technologies, or ‘hi-tech smuggling attempt’ is a modern version ‘of throwing tennis balls filled with drugs over prison walls’, where the real issue of smuggling contraband is subsumed to the dominant drone panic meme. There is now a counter-meme circulating calling for defending against drones, with suggestions ranging from lasers to nets to sophisticated jamming systems.

A 2015 protest in Japan prompted the following headline “Japanese police unveil first line of robotic defence” (ninemsn, 2015). This syndicated article talks about the Japanese police force unveiling its first line of robotic defence, a "wasp" drone designed to take out nefarious airborne automatons by way of a deployable net. This system was rolled out in response to an alleged nefarious use incident earlier in 2015 which saw a drone carrying a small amount of radioactive material landed on the roof of Prime Minister Shinzo Abe's office. In an example of the subjective nature of nefarious use, the caesium carrying drone was used in protest of Japanese policy on nuclear power.

In the subsequent follow-up story, “Man who landed drone on roof of Japanese prime minister’s office gets suspended sentence” (Murai, 2016), Yasuo Yamamoto, the 41-year-old man who landed a drone carrying a container filled with radioactive soil on the roof of the official residence of Japan’s Prime Minister in 2015 was sentenced to two years in prison. Yamamoto flew the drone in protest against Japan’s policy on nuclear energy (The Japan Times) which raises the question as to whether this is a legitimate form of activism or protest as opposed to illegitimate nefarious use of drone technologies.

Nefarious purposes encompasses other moral panics associated with the general misuse of drones, from attempts at smuggling contraband into jails such as the Herald Sun article above, to pranks such as reports of UFO’s and mysterious flashing lights hovering over Melbourne’s exhibition gardens, also reported by the Herald Sun (Deery, 2012), and general irresponsible or idiotic behaviour (Clothier, 2016), however what constitutes nefarious behaviour is subjective. FPV racers have at various times been regarded as nefarious, with individuals scrutinised by both ACMA and CASA in regards to compliance with aviation and communication laws as they struggle to apply these to fledgling drone technologies.

The subjective issue of panics continues in the story “Drone crashes in middle of ceremony at Australian War Memorial in Canberra” (ABC News, 2016) in which a man is under investigation by the Civil Aviation Safety Authority after he crashed a recreational drone at a ceremony at the Australian War Memorial. The individual, whose identity has not been released, could face penalties between \$900 and \$9,000.

Is this an example of a nefarious use or safety panic? When does misuse become nefarious activity? Perception and representation play a key role in the promulgation of nefarious use panics – one man’s freedom fighter is another man’s terrorist, especially as the same piece of technology can be used for such a diversity of applications. Drone technologies offer opportunities for ‘productive misuse’ (McCosker, 2015) – as a means of political protest as in the case of Yasuo Yamamoto; or as tools for DIY tactical media

in combination with social media modes of exchange and distribution.

Commercial off-the-shelf personal drones are being used by various groups in the Middle East for intelligence and surveillance to obtain a tactical advantage (Friese, 2016), and it is these media portrayals that have contributed to a greater knee jerk institutional response that all ‘recreational’ drone use is subversive, with the risk that poor regulation based upon incumbent narratives skewed by drone panics will drive drone use underground (Calo, 2013).

## CONCLUSION

In conclusion, another senate inquiry calling for the integration of drones into commercial airspace recommended further ongoing consultation with personal drone users by way of consultations with the peak body – a classic case of only having a conceptual understanding of this community of practice, a *Gemeinschaft* that encompasses emerging fliers and as such by its very nature has no peak representational body. The two media events I documented, five months apart, occurred at period as the FPV group I was following underwent the shift from *Gemeinschaft* to *Gesellschaft* – a loosely affiliated group of like minded individuals to an incorporated body with board of management: the Melbourne MultiRotor Racing Club. The first media event being essentially for the ABC’s ‘Lateline’ program (broadcast June 2015) and open to all fliers, the second being a rather secretive invitation-only event for Channel 10’s ‘The Project’ (broadcast November 2015). Despite the fact that over a six month period the group had become an incorporated entity, had members compete and win in international drone competitions and had moved its regular race meets from abandoned warehouses and clandestine meets at night in shopping centre car parks referred to by code name to publicly advertised meets announced on a variety of forums and social media held at commercial indoor venues such as the Moorabbin GoKart track, complete with viewing area, race entry fees and bar, the Channel 10 coverage (November) still represented the group as underground, despite the group identifying as being mainstream, and misrepresented the legality of drone racing in order to remain with the edgy, underground quasi legal meme, much to the chagrin of participants.

In today’s competitive commercial media terrain the use of headlines as “click-bait” to generate views or impressions is commonplace. The way panics are portrayed and amplified by the mainstream media is influenced by this commercial model and it is important to give credit to the formidable, implacable role of media, and cultural representations more generally, as they are transmitted, received, interpreted and circulated through old as well as new modes, channels and technologies. (Goggin, 2006). The old journalism adage still applies: never let the facts get in the way of a good panic.

Panics are created in the gulf between representation and actuality, combined with fluid nomenclature, competing conceptual terrain, non-experienced technology and use of catch-all phrases. A multiplicity of incumbent narratives about a non-experienced technology combined with mainstream media ‘hype’ sustains moral panics which in all likelihood will never disappear, as long as reality doesn’t match the hyperbole. The gulf between experienced technology and its representation is vast, with the resulting memes,

tropes and incumbent narratives depicting the tension that exists between representation and identity, the conceptual versus the actual, and the perceived versus the reality of drone culture.

When talking about representations of drones, the contested conceptual terrain and lack of standard nomenclature (McCosker, 2015) or the use of catch-all phrases (Frieze, 2016) contributes to the creation of panics when amplified by the mainstream media and results in researchers grasping for terms such as incumbent narratives (Jablonowski, 2015), memes (Rothstein, 2015), and tropes (McCosker, 2015) to describe the fluid conceptual frameworks underpinning drone discourse. All of these terms are an attempt to describe the mutable nature of the conceptual stories that are first reached for or turned to in an attempt to find a common conceptual framework for discourse on drones; a multiplicity of stories with a variety of origins that are replicated, interchanged, transferred and evolve as the representation of drones continues to transform, being defined, refined and re-defined as the journey from conceptual technology to experienced technology continues, in as much as drone technologies continue to evolve as the underpinning technologies mature. Drone panics accelerate this process by bringing to the fore dominant cultural concerns of the moment, shining the spotlight on the current meme, and exposing it to the light of public analysis and over time, evaluation of its applicability and veracity as drone narratives continue to emerge, unfold and disentangle.

Today's rapid news cycle means there is a temporal nature to the dominant narrative – the panic or concern of the moment, however incumbent narratives are pervasive. New narratives will be created as the technology continues to evolve and becomes an experienced technology, and inevitably accompanying this evolution will be both new panics and old concerns.

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## REFERENCES

ABC News, 2014. *ATSB says drones pose risk to aviation following near collision.*

[Online] Available at:

<http://www.abc.net.au/news/2014-05-27/atsb-says-drones-pose-risk-to-aviation-following-near-collision/5480156> [Accessed 2 February 2016].

ABC News, 2014. *Drone Operator at Geraldton Marathon Fined.* [Online]

Available at:

<http://www.abc.net.au/news/2014-11-13/drone-operator-at-geraldton-marathon-fined/5887196> [Accessed 2 February 2016].

ABC News, 2014. *Triathlete injured as drone filming race falls to the ground.* [Online]

Available at:

<http://www.abc.net.au/news/2014-04-07/triathlete-injured-as-drone-filming-race-drops-to-ground/5371658>

[Accessed 02 02 2016].

ABC News, 2016. *Drone crashes in middle of ceremony at Australian War Memorial in Canberra.* [Online]

Available at:

<http://www.abc.net.au/news/2016-02-19/drone-crashes-in-middle-of-ceremony-at-war-memorial-in-canberra/7185202>

[Accessed 23 February 2016].

Anderson, C., 2013. *Drones: When the future sneaks up on you.* [Online]

Available at:

<http://www.suasnews.com/2013/04/22569/drones-when-the-future-sneaks-up-on-you/>

[Accessed 27 October 2013].

ARL Public Affairs, 2016. *Army selects 3-D printed unmanned aircraft systems concept for future experiment.* [Online]

Available at:

[http://www.army.mil/article/162445/Army\\_selects\\_3\\_D\\_printed\\_unmanned\\_aircraft\\_systems\\_concept\\_for\\_future\\_experiment/](http://www.army.mil/article/162445/Army_selects_3_D_printed_unmanned_aircraft_systems_concept_for_future_experiment/)

[Accessed 18 February 2016].

Australian Law Reform Commission, 2008. *For Your Information: Australian Privacy Law and Practice*, Canberra: Commonwealth of Australia.

Bridle, J., 2013. *Australia: Drone Shadows, Diagrams, and Political Systems.* [Online]

Available at: <http://booktwo.org/notebook/australia-drone-shadows/>

[Accessed 24 May 2014].

Buscemi, C., 2014. *Aussie FPV thread ... :) - Page 1675 - RC Groups*. [Online]  
Available at:  
<http://www.rcgroups.com/forums/showthread.php?t=1147488&page=1675&highlight=Geraldton+hacked+drone#post28022262>  
[Accessed 02 02 2016].

Calo, R., 2013. *Bad laws would hurt good drones*. [Online]  
Available at: [edition.cnn.com/2013/03/05/opinion/calos-drones/index.htm](http://edition.cnn.com/2013/03/05/opinion/calos-drones/index.htm)  
[Accessed 27 October 2013].

Clothier, R., 2015. *Privacy and Drones*. [Online]  
Available at: <https://www.linkedin.com/pulse/privacy-drones-reece-clothier>  
[Accessed 2 February 2016].

Clothier, R., 2016. *Security and Unmanned Aircraft Systems*. [Online]  
Available at:  
<https://www.linkedin.com/pulse/security-unmanned-aircraft-systems-reece-clothier>  
[Accessed 28 February 2016].

Corcoran, M., 2013. *Invited speaker, "Protecting Australia with Drones: Cheaper, Better, Smarter, Safer?" seminar*, Canberra: s.n.

Deery, S., 2012. *UFO sighted over Carlton Gardens in central Melbourne*. [Online]  
Available at:  
<http://www.heraldsun.com.au/news/victoria/ufo-sighted-over-carlton-gardens-in-central-melbourne/story-e6frf7kx-1226479683210>  
[Accessed 22 January 2016].

Farquhar, P., 2015. *Business Insider Australia: Inside the underground drone racing league that's booming in Australia*. [Online]  
Available at:  
<http://www.businessinsider.com.au/inside-the-underground-drone-racing-league-thats-booming-in-australia-2015-6>  
[Accessed 12 December 2015].

Friese, L., 2016. *ARES Special Report No. 2: Emerging Unmanned Threats: The use of commercially-available UAVs by armed non-state actors*, Perth: Armament Research Services (ARES).

Gibb, A. S., 2013. *Droning the Story (MA Journalism thesis)*. British Columbia: Simon Fraser University, Faculty of Graduate Studies.

Gillespie, I., 2016. *Killer robots, invisible drones: not science fiction any more. Welcome to war..* [Online]  
Available at:

<http://www.smh.com.au/technology/sci-tech/killer-robots-invisible-drones-not-science-fiction-any-more-welcome-to-war-20160118-gm8rwi.html>

[Accessed 16 February 2016].

Goggin, G., 2006. *Cell phone culture: mobile technology in everyday life*. New York: Routledge.

Gray, D., 2016. *Drones: A new kind of farmhand flies in to help*. [Online]

Available at:

<http://www.theage.com.au/victoria/drones-a-new-kind-of-farmhand-flies-in-to-help-20160210-gmqixw.html>

[Accessed 29 February 2016].

Heber, A., 2015. *How mining giant Rio Tinto is using drones*. [Online]

Available at: <http://www.businessinsider.com.au/rio-tinto-is-using-drones-2015-5>

[Accessed 2 February 2016].

Herald Sun, 2014. *Mt Martha woman snapped sunbaking in g-string by real estate drone*. [Online]

Available at:

<http://www.heraldsun.com.au/news/victoria/mt-martha-wom...drone/news-story/c3eaaeb6318d7f01dcb4394da968340a>

[Accessed 29 February 2016].

House of Representatives, S. C. o. S. P. a. L. A., 2014. *Eyes in the sky: Inquiry into drones and the regulation of air safety and privacy*, Canberra: Senate Printing Unit, Parliament House.

Jablonowski, M., 2015. Drone It Yourself! On the decentring of 'drone stories'. *Culture Machine*, Volume 16.

Landy, S., 2014. *Man accused of using drone to try and drop off drugs into Melbourne Remand Centre*. [Online]

Available at:

<http://www.heraldsun.com.au/news/law-order/man-accused...o-melbourne-remand-centre/story-fni0fee2-1226849877220>

[Accessed 2 February 2016].

Leeson, A., 2015. *Drone technology can detect sharks*. [Online]

Available at:

<https://au.news.yahoo.com/nsw/a/30088460/drone-technology-can-detect-sharks/>

[Accessed 2 February 2016].

Lufkin, B., 2016. *These Rescue Drones Search Forest Trails Like Robot Rangers*.

[Online]

Available at:

<http://www.gizmodo.com.au/2016/02/theres-no-escape-from-these-drones-that-track-your-trails-in-the-woods/>

[Accessed 29 February 2016].

McCosker, A., 2015. DRONE MEDIA: UNRULY SYSTEMS, RADICAL EMPIRICISM AND CAMERA CONSCIOUSNESS. *Culture Machine*, Volume 16, pp. 1-21.

McLuhan, M. & Powers, B., 1992. *The Global Village: Transformations in World Life and Media in the 21st century*. paperback ed. New York: Oxford University Press.

McPhedran, I., 2015. *The Australian government is about to spend \$300 million on self-piloted killer drones*. [Online]

Available at:

<http://www.news.com.au/world/the-australian-government-i...-drones/news-story/cb2ce87bc287aa09a548209c39971998>

[Accessed 2 February 2016].

Metropolitan Fire Brigade, 2013. *Aerial Fire Fighting Tool Takes Off*. [Online]

Available at: <http://www.mfb.vic.gov.au/News/Aerial-fire-fighting-tool-takes-off.html>

[Accessed 2 February 2016].

Murai, S., 2016. *Man who landed drone on roof of Japanese prime minister's office gets suspended sentence*. [Online]

Available at:

[http://www.japantimes.co.jp/news/2016/02/16/national/crime-legal/man-landed-drone-roof-japanese-prime-ministers-office-gets-suspended-sentence/#.VtQzO\\_7ovIV](http://www.japantimes.co.jp/news/2016/02/16/national/crime-legal/man-landed-drone-roof-japanese-prime-ministers-office-gets-suspended-sentence/#.VtQzO_7ovIV)

[Accessed 23 February 2016].

Neurala Inc, 2016. *Selfie Dronie App for the Parrot Bebop Drone*. [Online]

Available at: <http://www.neurala.com/products/selfie-dronie-drone/>

[Accessed 2 February 2016].

News.com, 2015. *It's six months away yet drones already tipped to be top gift for Christmas*. [Online]

Available at:

<http://www.news.com.au/technology/gadgets/its-six-months-waway-yet-drones-already-tipped-to-be-the-top-gift-for-christmas-2015/news-story/96c9cdc816f9297ee8ef01ec99f8b8eb>

[Accessed 2 February 2016].

ninemsn, 2015. *Japanese police unveil first line of robotic defence*. [Online]

Available at:

<http://www.9news.com.au/world/2015/12/14/10/30/japanese-wasp-drone-first-line-of-ro>

[botic-defence](#)

[Accessed 12 January 2016].

Pix4D, 2016. *Pix4D - Drone Mapping Software*. [Online]

Available at: <https://www.pix4d.com/>

[Accessed 2 February 2016].

Rothstein, A., 2015. *drone*. 1st ed. New York: Bloomsbury Academic.

SBS News, 2014. *Why you should rethink buying your kid a drone for Christmas*.

[Online]

Available at:

<http://www.sbs.com.au/news/article/2014/11/30/comment-why-you-should-rethink-buying-your-kid-drone-christmas>

[Accessed 2 February 2016].

Schroyer, M., 2011. *Drone Journalism*. [Online]

Available at: <http://www.dronejournalism.org/>

[Accessed 27 October 2013].

Singer, P. W., 2013. *DroneU podcast: P. W. Singer on what happens when the Predator comes home*. [Online]

Available at: <http://droneu.org/p-w-singer>

[Accessed 27 October 2013].

Sleeth, M., 2015. *Drone Opera*. Melbourne: Experimenta.

Soloshot, 2016. *Soloshot - your personal cameraman*. [Online]

Available at: <https://shop.soloshot.com>

[Accessed 2 February 2016].

Steinman, J., 2016. *Imagine the Starling: Peak Fighter, the Swarm, and the Future of Air Combat*. [Online]

Available at:

<http://warontherocks.com/2016/02/imagine-the-starling-peak-fighter-the-swarm-and-the-future-of-air-combat/>

[Accessed 20 February 2016].

Stewart, E., 2015. *Drones take businesses including real estate and construction to new heights*. [Online]

Available at:

<http://www.abc.net.au/news/2015-10-16/drones-take-businesses-to-new-heights/6860904>

[Accessed 29 February 2016].

Waite, M., 2013. *Drone journalism, the rules and the way forward*. [Online]  
Available at: <http://www.dronejournalism.org/page/2>  
[Accessed 27 October 2013].