Hovering Over the White Picket Fence:
Exploring the Hopes and Concerns of Auckland Community Leaders Regarding Police Drones.

Nicholas Alexander Kochedov

2023

School of Social Sciences and Public Policy

A research component submitted to Auckland University of Technology in partial fulfilment of the requirements for the degree of Master of Criminology and Criminal Justice

Abstract

The purpose of this thesis was to explore Auckland community leaders' perceptions of police use of drones, including for the purposes of routine surveillance. This included exploring the hopes and concerns that communities have regarding police drones, and how concerns might be addressed. While there are several overseas studies exploring public perceptions of police drone use, at the time of writing, research examining public perceptions in Aotearoa New Zealand is very limited. To the best of my knowledge, this is the first study to focus specifically on this topic in Aotearoa New Zealand. This exploratory study was guided by the social constructionism worldview and qualitative description methodology. It involved seven face-to-face semi-structured interviews with community leaders throughout Central to Southern Auckland. The qualitative approach allowed the study to explore the perceptions of the community leaders and their communities in depth and expand on existing overseas literature. Community leaders were chosen as they could represent the interests of their wider community in addition to sharing their own individual views. The interview data was analysed using reflexive thematic analysis. Generally, community leaders in the current study were receptive to the idea of the New Zealand Police using drones, suggesting that drones could contribute to improving police efficiency and improving safety, including both for communities and police officers. However, community leaders also raised concerns regarding the practicalities of drone use, privacy and police mismanaging drones. While the focus of the study was on police drones, a short section was included on community leader perceptions of private drone use, which elicited similar concerns to police drone use. Four key findings emerged from these discussions, including the importance of police adopting a balanced approach to drone use, the intricacy of reactive vs proactive use of drones and how some community concerns may be with the police as operators of drones rather than with the drone itself. The fourth key finding of community engagement involving partnership, cooperation and even decision making, was of particular interest as it outlined what could be done next by the police in order to alleviate some of the concerns that communities have. Community engagement was also noted to have the potential to increase the chance that police drone use is, and is perceived to be, acceptable and appropriate to communities. Many principles and viewpoints of community leaders were explored from the perspectives of police legitimacy and democratic policing. The findings demonstrate that more future research could be done to further develop our understanding of public perceptions of drone use by police and more broadly by the public.

Table of Contents

Contents

Abstract 2
Table of Contents 3
List of Figures 5
Attestation of Authorship 6
Acknowledgements 7
Chapter One: Introduction 8
    Positionality statement 11
Chapter Two: Literature review 13
    History of drone use 13
    Adoption of drones outside of the military 15
    The value of drones for the police 17
    Police and surveillance 21
    Surveillance and civil rights 22
    Studies exploring public perceptions of drones 24
    The current use of drones by the New Zealand Police 30
    New Zealand law and police drones 32
    Understanding public perceptions of police 33
    The current study 37
Chapter Three: Methodology 39
  Methodology and methods 39
    Social constructionism worldview 39
    Qualitative research type 40
    Methodology 41
    Methods 41
  Participants 42
    Recruitment 42
    Sample 45
  Data collection 45
    Interview process and transcription 45
  Data analysis 48
    Analytical approach 48
  Ethical considerations 52
    Partnership 53
    Participation 53

Protection 53
Conclusion 54
Chapter Four: Findings 55
Improving police efficiency 55
Inconspicuousness 56
Agility 57
Efficient use of police resources. 58
Situational awareness 59
Improving safety 61
Preservation of life 61
Improving community safety 62
Practicalities of drone use 64
Overreliance on drones 64
Too many drones 66
Targets and hazards 67
Visibility of drones 68
Privacy 69
Surveillance and privacy 69
Data protection 71
Reactive vs proactive use of police drones 72
Police drone mismanagement 74
Misuse of surveillance 74
Mistrust 76
Oversurveillance 77
The way forward with communities 78
Important time for dialogue 78
Importance of partnership 79
Informing communities 82
Refining rules 83
Private users 85
Findings conclusion 87
Chapter Five: Discussion 89
Introduction 89
Summary of key findings 89
Interpreting Findings 91
Importance of balance 91
Proactive vs reactive use 95
The issue of the drone vs its operator 97
Community engagement 100

Reviewing the study 104
Limitations 104
Recommendations 105
Future research 106
Conclusion 107
References 109
Appendix A – Ethics Approval 115
Appendix B – Participant Information Sheet 116
Appendix C – Consent Form 118
Appendix D – Interview Schedule 119
Appendix E – Fact Sheet 121

List of Figures

Figure 1 United States Air Force Predator drone 14

Figure 2 Border Patrol Predator drone 15

Figure 3 DJI Phantom 4 17

Figure 4 DJI Mavic Pro 18

Figure 5 Interview documents 46

Figure 6 Final stage of theme creation 51

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed: Nicholas Alexander Kochedov

24/07/2023

Acknowledgements

I wish to acknowledge the seven community leaders that decided to participate. This current study would not have been possible without their involvement.

I also wish to acknowledge my research supervisor, Dr Kirsten Hanna, for her support and guidance. Her insight and experience have been invaluable.

I would also like to acknowledge my family, especially my parents and grandmother, for supporting me during this thesis journey.

The study was approved by the Auckland University of Technology Ethics Committee (AUTEC) on October 25th, 2022 (reference number 22/292).

Chapter One: Introduction

> In the far distance a helicopter skimmed down between the roofs, hovered for an instant like a bluebottle, and darted away again with a curving flight. It was the police patrol, snooping into people's windows. The patrols did not matter, however. Only the Thought Police mattered. (Orwell, 1949/2016, p. 17)

Drone numbers have grown exponentially in the last decade. In the United States (U.S.) in 2012, the Federal Aviation Authority planned and approved the use of over 30,000 drones in domestic airspace (Schlag, 2013), which had grown to over 1.5 million recreational and over 600,000 commercial drones being used in 2021 (Federal Aviation Authority, 2022). Price Waterhouse Cooper estimated that in 2016 the global market for drones was worth around USD$127 billion, while the Association for Unmanned Vehicle Systems International forecast the drone sector in the U.S. to create around 100,000 jobs by 2025 (Shaw, 2017). Private citizens have not been the only users of drones. It is estimated that at least 1,103 law enforcement agencies were using drones throughout the U.S. in 2020 (Gettinger, 2020), while at least 21 police services in the United Kingdom (U.K.) had received approval to routinely use drones by 2019 (Fox, 2019c).

While "drone" is the most commonly used term for these aircraft, several other terms exist and have been regularly used by police and researchers. For example, the New Zealand Police (2020) refers to drones as Remotely Piloted Aircraft Systems (R.P.A.S.), while Unmanned Aerial Vehicle (U.A.V.) and Unmanned Aerial Systems (U.A.S.) are also commonly cited (Boyle, 2020). The term "drone" itself is very broad and can encompass many different definitions. Drones can vary by size, speed and the range that they can travel, from smaller commercially available quadcopters, like the DJI Phantom 3, which weighs around 1.2 kilograms, to larger military models like the "Predator" with a take-off weight of around 1 tonne and a wingspan of over 16 metres (Boyle, 2020). Boyle (2020) outlines three key characteristics of a drone: First, it is remote controlled; second, it is capable of aerial movement; and third, it is designed to be reused[1]. For the purpose of this study the term "drone" will be used, with smaller commercially available quadcopter models like the DJI Phantom 3 being the main focus.

While drones were originally primarily a military technology, technological innovations have made drones more compact, portable and cheaper to use, enabling growth in their use by private and state users such as the police as a potential alternative to helicopters and planes (Bentley,

[1] Early drones did not always have these characteristics, with many in WWI and WWII being designed as single-use aerial torpedoes or cruise missiles.

2018; Dwyer-Moss, 2018; Heen et al., 2017). Drones are a versatile technology, allowing the police to use them for a large range of applications including surveying of crime scenes, search and rescue, aiding in emergency responses and even conducting routine surveillance patrols (Bentley, 2018; Heen et al., 2017; Schlag, 2013). They can also be equipped with a variety of equipment such as speed radar and automatic number plate readers and can even carry small payloads of cargo (Bentley, 2018; Boyle, 2020; Schlag, 2013). However, the main functionality of a police drone revolves around its onboard camera, which enables the police to conduct video surveillance and aerial observation.

While drones offer police a range of beneficial capabilities, they also pose several serious risks, including with regards to the impact of police drones on privacy rights through surveillance of community members (Boyle, 2020; Heen et al., 2017; Schlag, 2013). In the U.S. there is widespread debate with regards to the application of the Fourth Amendment on police drones, under its protections against unreasonable search and seizure by the state (Dwyer-Moss, 2018; Galizio, 2015; Schlag, 2013; Shaw, 2017). In the U.K. there have been discussions about the prevalence of surveillance technology, especially closed-circuit television cameras (C.C.T.V.), with the discussion evolving to encompass drones and how too much surveillance can have serious impacts on privacy rights (Fox, 2019c). Two overseas examples also highlight the importance of examining public perceptions and ensuring that drone use is acceptable to local communities. The Los Angeles Police Department's drone programme encountered backlash in 2014 from communities regarding the issue of surveillance and its impact on privacy, forcing the suspension of drone use, with backlash continuing several years later when the police eventually restarted their drone programme (Bentley, 2018). In 2015, the Australian Federal Police, during their proposal to expand domestic drone operations, noted criticisms regarding the impact of drones on ethical rights, legality and the community, with researchers highlighting the importance of addressing these issues before drones are used (Coliandris & Coliandris, 2015).

Domestically, the New Zealand Police has been using drones for at least a decade (Fisher, 2013), with a recent "Proof of Concept" document suggesting that the use of drones could be expanded further with each police district potentially maintaining up to six "Mavic 2" drones (New Zealand Police, 2020). Yet research examining public perceptions of police drone use in Aotearoa New Zealand is very limited. The only study identified to date is a quantitative survey by the Civil Aviation Authority (2020) that explored public perceptions of drone use more generally, albeit with a very short section about police drones. Therefore, there is a gap in the literature concerning public perceptions of police use of drones in Aotearoa New Zealand and

how drones may impact local communities. Exploring local perceptions of police drones is important, as the use of drones by the police is increasing both overseas and domestically, with the New Zealand Police (2020) indicating interest in expanding their own use of drones. Some researchers overseas have concluded that more research still needs to be done to better understand public perceptions of police drone use and how some circumstances and contexts can impact specific views (Anania et al., 2019; Bentley, 2018; Heen et al., 2017; Lin Tan et al., 2021; Sabino et al., 2022). Exploring perceptions of police drones is also important as drones are a major point of contention overseas, especially surrounding the impact of surveillance on privacy (Bentley, 2018; Boyle, 2020; Heen et al., 2017; Schlag, 2013).

The aim of the current study is to begin to fill this gap in the literature by exploring local community leaders' views about police use of drones in Aotearoa New Zealand. The research question that has been adopted for this current study is: What are the opinions of Auckland community leaders about the use of drone technology by police, including for the purposes of routine surveillance? While the study aims to investigate the hopes and concerns that community leaders have regarding police drones, it is equally important to explore the ways that concerns can be addressed to ensure that drone use is acceptable to the public. Under democratic policing, for example, communication and partnership with the public can enable the police to develop a better understanding of the views of communities in order to ensure that the use of drones is supported by the public (Coliandris & Coliandris, 2015), which is a key approach that influences this current study. Some researchers have also explored public perceptions of police drone use through the lens of procedural justice (Saulnier & Thompson, 2016) and police legitimacy more broadly (Heen et al., 2017), which have also been explored by the current study.

The current exploratory study is founded upon the social constructionism worldview and aims to investigate the opinions and views of members of the community (Bryman, 2012; Creswell, 2009). The methodology adopted is qualitative description, which aims to provide an accurate account of the experiences and perceptions of participants (Sandelowski, 2010) and is consistent with a social constructionist approach through capturing individual experiences and acknowledging their subjectivity (Doyle et al., 2020). Most overseas studies that examined public perceptions of police drone use have been primarily quantitative in nature and have not provided deeper insight into why participants held certain views towards police drones. To elicit those deeper insights, the data collection method selected was semi-structured interviews, which enable participants to speak freely while creating opportunities for the probing of participant views (Liamputtong, 2020). Seven community leaders were recruited, and their interviews were

analysed through reflexive thematic analysis, which examines and explores patterns of recurring meanings and ideas (Braun & Clarke, 2006; Byrne, 2022). Reflexive thematic analysis emphasises the importance of the researcher examining their own biases and subjectivity, including how they might impact the research (Braun & Clarke, 2020; Byrne, 2022).

Positionality statement

Before proceeding further, I want to consider the question: Can someone be an objective researcher in a subjective world? I think it is important for a researcher, especially one who is investigating subjective perceptions and undertaking qualitative research, to consider the sorts of biases and preconceptions that they may already hold and how this may influence their thinking. While I believe that a researcher's bias cannot be completely detached, as methods and approaches to inquiry are heavily influenced by the researcher, it can still be minimised where possible. I engaged with reflecting on my own potential bias and preconceptions during the planning as well as the execution of the study, which helped me better understand the role that my assumptions may have had in influencing the decisions made in the study and so that I could minimise those influences.

Why drone technology in particular? I suppose my interest in drones derives from a broader interest in new and innovative technologies—technologies that can simplify and improve the ways we do things, such as by improving efficiency, cutting down costs and time spent. We are living in unprecedented times where computers and electronics are advancing at an extraordinary rate with no end in sight. This technological advance also raises many questions for the ways that police agencies may be adopting technologies or even how they might be adopted by people engaged in offending, a point raised by Byrne and Max (2011, p.32), "Any modern society needs police who can make good use of technology. If for no other reason because criminal adversaries with an alternative code will find ways of using technology."

This leads me back to my interest in the police and my cultural assumptions and preconceptions that may be associated with this. I was raised on the ideals and ideology of the Soviet Union, although over a decade after its dissolution and an entire ocean away in a country whose cultural values were often at odds. I remember many children's stories, films, and cartoons about the Soviet Police, or Militsiya (Militia) as it was known back then, and a particular character called Uncle Styopa the Policeman, a Soviet children's equivalent of a superhero who fought crime. Although this cultural upbringing taught me to respect authority, I was also taught to think critically and ask questions where questions ought to be asked. I believe that being immersed in

two distinct western and eastern cultures, one highly individualistic and the other highly communal, especially from an early age, provides me with insight into different worldviews and perceptions of power and authority.

While I view drone technology as a beneficial tool, especially in the spheres of search and rescue, crime scene photography or even providing situational awareness, I nonetheless understand the risks associated with its potential misuse, including the overarching risk of drone technology contributing to a total surveillance state, reminiscent of George Orwell's *Nineteen Eighty-Four* and Big Brother. Although an extreme case scenario, it is still one that merits due consideration. At the end of the day, the police in a democratic and free society, especially as a civil organisation, has a duty to seek out and prioritise the needs of the community first and foremost. Policing is not a one-way street, and the police need the cooperation of the public as much as the public needs the support of the police. The motto of the police is "Safer Communities Together" after all and so there is a fundamental need to involve and consider the views of the community with regards to any new measures that are implemented by the police that have a direct impact on the public.

Chapter Two: Literature review

History of drone use

Drones have had a very rich and varied history over the past century. Nikola Tesla first envisioned the use of drones in 1898, speculating that aircraft could carry radio-controlled equipment, allowing them to be controlled remotely (Fox, 2019a). He also predicted that this invention would be of great use and value for the military, something that was going to be proven true very soon. In fact, not long after, the First and Second World Wars saw the first iterations and developments of these remotely piloted aircraft[2] (Boyle, 2020; Fox, 2019a; Schlag, 2013). Both the U.K. and the U.S. were influential in the early development and breakthroughs in drone technology during this period, although this was initially only for military purposes. During the First World War, the U.S. Navy and U.S. Army collaborated with many local inventors to create two different planes that could be radio-controlled, had the capacity to fly without a pilot onboard and could be used as flying torpedoes. This included the "Hewitt-Sperry Automatic Airplane" and the "Kettering Bug" (Boyle, 2020; Fox, 2019a). In the 1930s, the British Royal Navy also created a radio-controlled plane, named "DH.82B Queen Bee", for the purposes of target practice and first used the term "drone" (Boyle, 2020; Fox, 2019a). The interwar period also saw the first rise and development of non-military drones, with many hobbyists creating small radio-controlled planes enabled by the sophistication of radio technology (Boyle, 2020). The Second World War itself saw the first adoption of drones in combat with the more particularly famous examples being the V-1 and V-2 rockets, inventions of Nazi Germany which were used as cruise missiles to strike distant targets. The beginning of the Cold War saw a shift in drone development from their use primarily as single-use weapons of war, such as flying torpedoes and cruise missiles, to also include surveillance[3], both by the United States and the Soviet Union (Boyle, 2020; Fox, 2019a; Schlag, 2013). The United States continued to further develop drones in the late 1950s and early 1960s, using drones extensively during the Vietnam War[4] to conduct surveillance and aerial observation (Dwyer-Moss, 2018; Schlag, 2013). The 1970s saw the development of the predecessor to the modern "Predator" drone, named the "Pioneer" by Israel and whose use in the Yom Kippur War and later in

[2] Interestingly, the first use of an Unmanned Aerial Vehicle (U.A.V.) can be traced back to 1849 when Austria launched around 200 balloons, carrying explosives with timed fuses, to attack Venice, although these balloons do not qualify as "drones" as the balloons could not be directly controlled after being launched (Fox, 2019a).

[3] Pigeons were often used to conduct aerial surveillance with small cameras, before drones were made reliable. Pigeons demonstrated the benefit of using something small and in the air to conduct surveillance (Fox, 2019a).

[4] The U.S. conducted around 3,434 drone flights during the Vietnam War. While this led to 554 drones being shot down, the prevention of U.S. pilots being lost was seen as enough to outweigh any potential cost (Schlag, 2013).

conflicts in the 1980s generated renewed interest within the United States (Boyle, 2020; Schlag, 2013). The U.S. Army and Navy were impressed and purchased the "Pioneer" drone from Israel and spent the next decade developing and improving it (Boyle, 2020). The 1980s and 1990s marked the further development of this drone by the United States Department of Defence, which provided significant funding to create an unmanned military platform that could be used both for aerial attack and surveillance (Schlag, 2013). The late 1990s saw the creation of the "Predator" drone (see Figure 1), by the United States, which revolutionised drone technology through its capability to track specific targets from a distance and in conducting military strikes at the same time (Boyle, 2020).

Figure 1

U.S. Air Force MQ-9 Reaper

Note: MQ-9 Reaper drone used by the U.S. Air Force. From *MQ-9 Reaper*, by United States Air Force, 2007. Flickr (https://www.flickr.com/photos/usairforce/7414675214/in/album-72157630223467322/). United States Government Works.

The recent "War on Terror", at the turn of the century, cemented the use of drones as a weapon of war by the U.S. military, making them a regular sight throughout the Middle East including Iraq, Afghanistan, and Pakistan, both for precision military strikes but also for surveillance (Boyle, 2020; Fox, 2019a; Schlag, 2013). Drones can be used without putting a pilot in harm's way during combat which was one of the major appeals for the military (Boyle, 2020). The

U.K. was also no stranger to modern drone inventions, deploying their “Reaper” drones in Afghanistan in 2007 (Thompson, 2020). These drones were adopted both for the purposes of aerial attack and to conduct surveillance, just as the U.S. had been doing in the decade prior.

Technological developments throughout the 20th and early 21st centuries demonstrated the effectiveness of drones in a military setting, especially the ability of drones to conduct aerial surveillance (Schlag, 2013; Thompson, 2020). This aerial surveillance allowed the military to effectively track individuals from range and proved to be a useful capability and opportunity for police and other law enforcement to eventually do the same (Boyle, 2020).

Adoption of drones outside of the military

Figure 2

Customs and Border Patrol Predator Drone

Note: A repurposed air force drone being used for border surveillance. Note the lack of onboard weaponry. From *CBP Predator B Drone San Angelo Regional Airport*, by J. Cutrer, 2018, Flickr (https://www.flickr.com/photos/joncutrer/45065114421/in/album-72157695327697220/). CC BY 2.0 Unmodified.

While being originally envisioned and developed as a military technology, the ability of drones to conduct surveillance very effectively meant that they would eventually make their way into the hands of law enforcement. In the U.S. the domestic use of drones began at the federal level

such as with the Department of Homeland Security who, for example, purchased 10 "Predator" drones, similar to the one seen in Figure 2, between around 2007 and 2013 from the Air Force and retrofitted them for domestic surveillance at a total cost of USD$250 million (Schlag, 2013). Other federal agencies also began purchasing drones, including the Federal Bureau of Investigation and the United States Secret Service. The first routine use of drones began in 2005 with the United States Customs and Border Patrol (C.B.P.) who used repurposed Air Force drones to survey and patrol the borders of Mexico (and later the border with Canada in 2008) (Boyle, 2020; Dwyer-Moss, 2018). In 2011 drones demonstrated their potential usefulness to local police, when a C.B.P. drone assisted North Dakota Sheriffs in locating and arresting three gunmen during a manhunt. It should however be noted that using large Reaper and Predator drones was an expensive venture for C.B.P., with an estimated cost of at least US$12,255 per hour according to an investigation in 2013, while also garnering criticism regarding potential privacy violations and data protection (Boyle 2020). While C.B.P. continued to use their drones to patrol the border and intercept drug shipments, the adoption of cheaper and smaller drones by local police started to figuratively and literally take off (Dwyer-Moss, 2018). Between 2009 and 2017, at least 347 police and other law enforcement agencies had acquired drones in the U.S. (Bentley, 2018). Around half of these agencies previously did not have the financial capacity to operate more conventional aircraft, including helicopters and planes. By 2020, at least 1,103 law enforcement agencies were operating drones throughout the U.S. (Gettinger, 2020).

In the U.K. the introduction of drones into police operations was primarily connected with the growing interests in drones of the wider European Union (E.U.) (Fox, 2019b). The 2015 Riga Declaration anticipated major growth in the drone sector and so foresaw the need for regulatory bodies, including the police, to be more actively involved in regulating[5] the growing market while also safeguarding the rights and interests of citizens (Fox, 2019a; 2019b). In the U.K. this included the involvement of the Civil Aviation Authority (C.A.A.) and local police services. In 2019, the E.U. estimated that the drone sector would have a yearly economic value of over 10 billion Euros over the next two decades and that police and other emergency services would be operating a fleet of over 50,000 drones (Fox, 2019a; 2019b). While the U.K. voted to leave the E.U. in 2016, these early developments and influences nevertheless played their part in the introduction of drones into local police services. In 2014, Essex Police was the first police service in the U.K. to begin using drones (Fox, 2019c). While the adoption of drones by police in the U.K. has been at a much slower pace than in the U.S, by 2019 at least 21 police services out of a total of 43 in the U.K. had acquired permissions from the C.A.A. to operate drones

[5] Police itself has been no stranger to being involved with policing the sky and aircraft. In 1784 Paris, a directive was given out that no balloon can be operated within the boundary of the city without first receiving approval from the police (Fox, 2019a).

(Fox, 2019c). In the wider E.U., there has also been an emphasis on using drones to promote positive social behaviour such as by preventing illegal dumping and dangerous driving and speeding (Boyle, 2020).

The police and the state have not been the only users of drones. It is important to highlight that there has been a large-scale adoption of drones by private users. According to the F.A.A. there were over 1.5 million recreational and over 600,000 commercial drones being used in the U.S. in 2021 (Federal Aviation Authority, 2022), which is a major increase from the F.A.A. approving the use of 30,000 new drones in U.S. airspace back in 2012 (Schlag, 2013). Economic forecasts expect that drones may contribute to creating over 150,000 jobs within the E.U. and over 100,000 in the U.S. by 2050 and 2025 respectively (Waghorn, 2016).

The demonstrated effectiveness of repurposed military drones in conducting surveillance by large law enforcement agencies like C.B.P. coupled with the introduction of more widely available commercial drones enabled police departments around the world to begin using drones. The next section examines the direct value that drones bring to the police.

The value of drones for the police

Figure 3

DJI Phantom 4 Drone

Note: Commercially available DJI Phantom 4 quadcopter drone. From *Phantom 4 Drone*, by R. Lynch, n.d., Public Domain Pictures (https://www.publicdomainpictures.net/en/view-image.php?image=190377&picture=phantom-4-drone). CC0 1.0

Figure 4

DJI Mavic Pro Drone

Note: Commercially available and recently popular DJI Mavic Pro model of quadcopter drones. From *Airborne Drone*, by Sound Media, n.d., Public Domain Pictures. (https://www.publicdomainpictures.net/en/view-image.php?image=421497&picture=airborne-drone). CC0 1.0

Technological innovation and advancements have led to commercially available drones becoming a much more viable option for police. Such technological improvements as the reduction in the size of drones, compared to their larger Air Force plane-sized counterparts, and reductions in the associated costs of purchasing and operating drones have allowed them to be rapidly adopted by many state and private operators (Bentley, 2018; Dwyer-Moss, 2018; Heen et al., 2017). One of the main appeals of drones for the police is their ability to replace more conventional aircraft, including helicopters and planes, at much reduced purchasing and operating costs, including fuel, training, and routine maintenance. This is more obvious when comparing the typical costs of the two. A helicopter, or even a plane, may cost the police in the U.S. somewhere between US$500,000 to US$3 million to purchase, while a basic drone may cost them around US$5,000; a model with extra upgrades to increase the battery charge for up to 12 hours and to improve its onboard camera increases the price to around US$25,000 (Bentley, 2018). Since most drones that police use are small quadcopters, similar to the ones in Figures 3 and 4, they can only stay in the air for a relatively short time and are individually

limited in their capacity to capture surveillance (Boyle, 2020). The compact size of drones is also another advantage as they can reach areas that helicopters cannot, including very tight spaces and dense urban environments, while also having better manoeuvrability (Heen et al., 2017). The undercarriage of a drone is also highly flexible, having the capability to mount a wide range of surveillance devices including, but not limited to, speed radar, phone-call monitoring devices, GPS trackers and licence plate readers (Bentley, 2018; Schlag, 2013). Similarly, drones can also be used for delivering small and lightweight packages, such as disaster relief aid, including medicine and food (Boyle, 2020). This capability has been adopted by private companies such as Amazon, who use their fleet of drones to deliver packages to customers. The private use of drones should not be overlooked as drones have been used for criminal and other nefarious purposes, such as by the Mexican Cartels to smuggle in drugs or even by terrorist organisations (Boyle, 2020). There is also a clear advantage to conducting aerial surveillance as pointed out during a Los Angeles County Sheriff's Department trial of using aircraft to record video of the city of Compton in 2012 (Dwyer-Moss, 2018). The trial was found to be successful as they were able to view and track almost anyone in the city; the success of the trial led to the Los Angeles Board of Police Commissioners approving a one-year drone surveillance pilot programme in 2017 (Dwyer-Moss, 2018). The versatility of drones allows them to be adopted in a wide range of situations and scenarios. This can range from search and rescue operations to the investigation of crime scenes, crowd management, providing situational awareness during emergency incidents and even routinely patrolling neighbourhoods to detect crime (Bentley, 2018; Fox, 2019c; Heen et al., 2017; Schlag, 2013).

While drones are highly versatile and capable, there are still some risks that should be mentioned surrounding their use. The U.S. Air Force has found that military drones can be easily disrupted while in flight such as by jamming or other forms of interference, which can disrupt control and result in them crashing (Boyle, 2020). Likewise, pilot error, weather conditions, and mechanical flaws in drones themselves have also been found to be major contributors to accidents. One particularly famous example is that of a drone in 2015 that crashed into the grounds of the White House in the U.S., after the pilot lost control of it (Shear & Schmidt, 2015). This specific example highlights the potential danger of pilot error when operating drones but also the vulnerability of protected airspace (Boyle, 2020). Drones also pose a danger to other aircraft as their small size makes them harder to detect on radar (Boyle, 2020). Although the odds of a direct collision are relatively low, the occurrence of near misses has prompted the F.A.A to look into ways to integrate drones into commercial U.S. airspace to prevent these incidents from happening, such as by the use of GPS (Boyle, 2020).

Another development of note is the potential weaponisation of police drones, which should not come as a surprise as drones have been shown to be an effective platform for warfare overseas. There have been some trends, particularly in the U.S., in looking into equipping police drones with non-lethal weaponry such as pepper-sprays, tear-gas or tasers, with some states directly legalising their implementation and use (Davis, 2019; Enemark, 2021). While the Chemical Weapons Convention forbids the use of tear-gas by the military in war, a loophole exists which permits its use in domestic operations, such as by the police (Davis, 2019). One example of the potentially lethal usage of remotely controlled devices was the use of a ground-based bomb disposal robot in the U.S., which was equipped with an explosive C-4 charge and used to remotely kill a gunman in a hotel room in 2016 (Davis, 2019; Enemark, 2021). Considering that police are meant to be a civil organisation, the growing militarisation of police and weaponisation of drones is a potential point of contention and debate (Coliandris & Coliandris, 2015; Fox, 2019c).

There are also direct risks and dangers of commercially available drones being used by terrorist organisations and other criminal organisations as enabled by their small size and cost. The U.S. Department of Homeland Security issued an alert in 2015 warning about the dangers of drones being used to target infrastructure such as airports (Boyle, 2020). Commercial drones can be equipped with small explosives up to 10 kilograms in weight and they have been used on a number of occasions such as by Mexican Cartels to fight rivals or by Hezbollah to target Israel, with some attempts in 2010 and 2014 to target U.S. government buildings being foiled (Boyle, 2020). The potential for drone weaponisation both by the police and private actors should not be underestimated.

Overall, the main function of drones, as commonly used by the police, still revolves around their capacity to carry an onboard camera, which allows drones to effectively conduct aerial observation and surveillance (Bentley, 2018; Schlag, 2013). Generally, police departments in the U.S. do not adopt drones for constant surveillance and primarily use them reactively in response to a specific event and to monitor a situation for a short period of time (Boyle, 2020). However, it is their potential for prolonged surveillance and drones' success at doing so which has shone a spotlight on potential issues and concerns associated with their increasing use (Boyle, 2020; Heen et al., 2017; Schlag, 2013; Shaw, 2017).

Police and surveillance

Surveillance by police is nothing new, with two technologies in particular giving the police the capability to monitor or survey areas and individuals remotely: helicopters and C.C.T.V. (Fox, 2019a; Heen et al., 2017; Schlag, 2013). C.C.T.V. has been routinely used by police around the world since the 1990s, although its origins can be traced back to the 1950s in the U.S. and U.K. (Fox, 2019c; Heen et al., 2017). It should be noted that C.C.T.V. has faced many controversies especially regarding oversurveillance, particularly in the U.K. which has over 5.9 million cameras in its streets (Fox, 2019c). Generally, though, its prevalence in society and easy access by private and commercial users has made it more accepted over the years (Fox, 2019b; 2019c). Usually with C.C.T.V. individuals in public spaces have an expectation and awareness of being watched and recorded, with an expectation of privacy in more private and secluded areas (Boyle, 2020). Police drones on the other hand are more mobile and surveillance has the potential to include private spaces, including backyards and bedrooms, which are usually free from C.C.T.V. observation. Helicopters in particular can be considered as a direct analogue to drones, as they are able to conduct surveillance from the air using an onboard camera (Schlag, 2013). The public has generally grown accustomed to helicopters, which may reflect their overall visibility in the air, compared to the stealthier drones, and society's familiarity with this technology and its potential benefits over time (Fox, 2019c; Schlag, 2013).

Both C.C.T.V. and helicopters have faced their share of controversy over their history of introduction and use. Many concerns regarding surveillance by C.C.T.V. and privacy intrusions have now shifted and spilled over into drones (Boyle, 2020). Civil organisations in the U.S. such as the American Civil Liberties Union, Electronic Frontier Foundation and the Electronic Privacy Information Centre all warn that drones have the capacity to erode privacy and can create even more surveillance (Bentley, 2018). Some people draw a parallel between the use of drones and the dystopian society of George Orwell's novel, *Nineteen Eighty-Four*, first published in 1949, a society ruled by 'Big Brother', where surveillance is prevalent, everywhere and a constant factor in people's lives (Fox, 2019a; 2019c). Interestingly in *Nineteen Eighty-Four* Orwell (1949/2016) originally wrote about the use of helicopters to achieve the purpose of aerial surveillance, though this role can now be argued to have been overtaken by drones. A surveillance state is one that is able to control any dissent movement through the use of surveillance (Boyle, 2020; Shaw, 2017). Here the democratic principles of accountability and transparency are eroded which enables the government to use even more coercive power.

Surveillance and civil rights

While surveillance may be one of the main motivations behind the police's use of drones, it is also one of its greatest risks, especially when considering the impact of drone surveillance on privacy rights and other civil liberties more generally (Fox, 2019c; Heen et al., 2017; Schlag, 2013). Two key examples highlight the importance of considering the impact of drones on civil rights and public perceptions. In the U.S., the Los Angeles Police Department's drone programme faced a major backlash and criticism in 2014 from local communities and the Department was forced to suspend any attempts at properly establishing a programme (Bentley, 2018). One of the community's main concerns was "mission creep" or the possibility of drones eventually being used for purposes beyond the originally intended functions or scope, such as search and rescue, something that was seen with the ever-growing use of helicopters in aerial surveillance and tracking. The potential of drones encroaching on privacy rights and being used to spy on citizens, similar to a 'Big Brother' society, was also a point of conflict and concern (Bentley, 2018). The Los Angeles Police Department faced further resistance from local communities when they decided to restart the drone programme years later. Similarly, the Australian Federal Police, who were submitting a proposal to the Australian Senate to expand their drone operations in 2015, noted that drones have the potential of negatively impacting ethical rights and the community, including privacy and legality (Coliandris & Coliandris, 2015). From this example, Coliandris and Coliandris (2015) highlighted the importance of addressing the impact of police drones on social control and police legitimacy before drones are used, on top of other privacy issues that the public are potentially concerned about. The negative connotations of drones, due to their association with overseas military use during warfare, was also another concern in the public's view.

Dialogue regarding the privacy implications of drones and their impact on civil rights in the U.S. primarily revolves around the Constitution, specifically the Fourth Amendment which guarantees protections for citizens from unreasonable search and seizures by the state (Dwyer-Moss, 2018; Galizio, 2015; Schlag, 2013). One of the main issues with the Fourth Amendment is its application to modern technologies, including helicopters and drones, considering that the original authors could not have foreseen such a future. Regarding the use of helicopters and planes, access to these aircraft was highly limited and usually restricted to either the state or a handful of individuals or organisations that had the financial capacity to operate them (Boyle, 2020; Schlag, 2013). This has changed with drones, as the state is not the only entity that has access to them; members of the wider public can also access them and conduct their own flights and even aerial surveillance (Boyle, 2020; Schlag, 2013). U.S. courts have noted that the availability and prevalence of drones, including domestic use and overseas use by the state, may

have undermined society's expectation of privacy so much that the public may not even hold a reasonable expectation of privacy from drones, in places where they originally expected to not be observed[6] (Schlag, 2013; Shaw, 2017). The danger of drones is that they can be easily used to survey both public spaces, but also private ones, where individuals may have previously expected to be undisturbed and to remain unmonitored by cameras (Boyle, 2020).

At the time of writing, apart from the U.S. Constitution, the only legislative or regulatory body at the federal level in the U.S. that applies to drones is that of the F.A.A. and their rules surrounding the safe use of drones within national airspace (Bentley, 2018; Fox, 2019b; Galizio, 2015; Schlag, 2013). Other attempts at regulating the use of drones by police have been aimed towards requiring a warrant to be issued before they are flown or to limit the geographic scope in which drones may be used (Galizio, 2015; Schlag, 2013). A key problem is that drones can fly below the altitude limits established by the U.S. Supreme Court for aircraft and complicate the precedence of setting altitude limits, by potentially hovering above a public sidewalk to view inside private property (Shaw, 2017). The versatility and prevalence of drones in the U.S., including their widespread access and use by the public, has made it very difficult to legislate rules and regulations to address civil and privacy rights.

In the U.K., and the wider E.U., the discussion regarding privacy rights is centred around the European Convention on Human Rights and the European Union's Charter, though the vote to leave the E.U. changed this precedent for the U.K. (Fox, 2019a; 2019b). The European Convention on Human Rights directly guarantees privacy, and regulations place greater restrictions on the use of data by private companies than in the U.S. (Boyle, 2020). While drones have prompted similar concerns in the E.U., especially with regards to surveillance, this is often overshadowed by the growth and quantity of C.C.T.V. cameras. The U.K., as mentioned before, faces a major internal debate regarding oversurveillance with the prevalence of C.C.T.V. in its streets, a point that has also evolved to include a discussion regarding drones and how they themselves have the possibility of having a similar if not greater impact on privacy rights (Fox, 2019c). One study in 2011 estimated that there was nearly one C.C.T.V. camera for every 32 people in the U.K. (Boyle, 2020). For the E.U., there is a very complicated process of balancing the personal privacy of citizens with security and safety, both for C.C.T.V. and also increasingly for drones.

[6] An article published in 1890 by Brandeis and Warren, as a response to cameras, discussed how technology has the possibility of changing the expectation of privacy including the associated rights. Their argument is that the right to be left alone should be the underlying principle and definition, which can protect individuals more broadly no matter from where the image was taken (Boyle, 2020).

Studies exploring public perceptions of drones

There has been a large variety of research conducted within the U.S. and other jurisdictions that examines public perceptions of drone use by the police. Heen et al.'s (2017) survey of 481 participants found that police drones are generally viewed more positively by the U.S. public when they are used reactively, such as to respond to emergency incidents, and viewed more negatively when they are used proactively, such as to routinely patrol to search for crime. The researchers also found that there were greater privacy concerns regarding proactive use of drones, however, due to the quantitative nature of this survey, the authors did not ask respondents to indicate in their own words what those privacy concerns were. The researchers also found that respondents who valued public safety over individual rights and those that identified as white exhibited the greatest support for drone use by the police (Heen et al., 2017). Similarly, pre-existing support, confidence, and trust in the police, including positive experiences with the police, were noted as being critical in determining how sympathetic an individual is towards the use of drones by the police.

Sakiyama et al. (2017) in a survey of 502 participants examining public perceptions of police use of drones in the U.S. produced similar findings to those of Heen et al. (2017). Sakiyama et al. (2017) found that there is greater support for the reactive use of police drones (e.g., search and rescue) over proactive use of police drones (e.g., crowd management) and that respondents who had more favourable perceptions of the police showed greater support for police use of drones. The researchers noted that perceived privacy intrusions by police drones evoking 'Big Brother'-like surveillance and more libertarian views regarding individual rights were associated with lower support of police drone use. The authors suggest that this is linked to greater support for the use of drones in remote areas, where there is less likely to be a privacy intrusion compared to a more densely populated location.

A series of mixed-methods questionnaires involving 406, 304 and 488 participants by Anania et al. (2019) looked at how ethnicity, political leaning and other demographic factors may influence support for police drones. Privacy concerns, including being constantly monitored and having one's personal space intruded upon, were a major issue for all ethnicities. These concerns outweighed the perceived benefits of police drone use, such as a reduction in crime or improvement in safety, with African-American and Hispanic respondents being concerned about drones being used for racial profiling, promoting negative stereotypes and perpetuating institutional racism. While support for drone use varied, it was still overall negatively perceived and often rejected. Respondents with more liberal and libertarian political affiliations indicated

lower levels of support and greater levels of concern regarding police drone use, which may have been due to liberal and libertarian political leanings emphasising more personal freedoms and individual rights. Conservatives showed greater support for drone use than the other three political views, while authoritarians[7] indicated more privacy concerns including less support for police use of drones than conservatives (Anania et al., 2019). A limitation of this research was that it did not provide an explanation as to why respondents with specific political leanings held particular views, which could have helped explain the variations in support for police drone use and privacy concerns in greater detail. A suggestion was made by researchers that there was greater support for use of police drones above African-American neighbourhoods compared with Caucasian or Hispanic ones due to the perception by the public of there being more crime in African-American and Hispanic neighbourhoods (Anania et al., 2019).

Saulnier and Thompson (2016) examined a Canadian national survey involving 3,045 participants and conducted two interviews with police officers on the topic of police perceptions of drones. The researchers found that the public was generally unaware of police drone use or its utility compared to traditionally piloted aircraft. The police participants had a more positive perception of drones compared to the public and saw them as being useful, including drones saving the police the time and effort necessary to perform routine activities such as investigations of crime scenes. The police participants noted that the biggest barrier to drone use by police was the public's attitudes towards, and perceptions of, drones. Other findings from this study mirrored those of the studies mentioned above. Specifically, one of the main issues that persisted regarding public perceptions of drone use by the police was concern about privacy invasion, where a large amount of footage and data is gathered for surveillance purposes with questionable motivations or justifications. There was also variation in the support expressed for police drones depending on the specific tasks drones were deployed for. The presence of immediate danger and threat appeared to be the key consideration, with greater support expressed for drones being used in disaster responses and finding a missing person as opposed to their use for issuing speeding tickets or crowd management, which could be associated with a preference for reactive use over proactive (Saulnier & Thompson, 2016). Generally, however, there was greater support for traditionally piloted aircraft being used for the same tasks over drones, including for search and rescue, disaster response and traffic management.

Although the following studies focused on drone use more generally, they were included as they also mentioned and discussed police use of drones, with concerns regarding private users having

[7] The researchers defined the four political views, liberal, libertarian, conservative and authoritarian based on the Nolan Chart political spectrum (Anania et al., 2019) Authoritarians for example desire less economic and personal freedom.

a potential bearing on perception of police use. Findings from Europe in particular present slightly different results to the U.S. and Canada. Klauser and Pedrozo (2017) examined questionnaires completed by 604 participants in Switzerland and found that police and military drones were viewed more favourably compared to commercial or hobbyist drones. Participants felt that commercial and hobbyist drones were more intrusive compared to military or police drones. The researchers noted that participants believed that only the state should have the right to conduct aerial surveillance, with police surveillance technology such as C.C.T.V. being closely associated with potential collective and personal benefit. Generally, participants seemed to reject a 'commercialisation' of the sky with private drones and, were more accepting of private drones being used in rural spaces rather than urban. Participants were also concerned about private drones being used for nefarious purposes, such as for terrorism or crime, with concerns raised about accidents being caused by private drones (Klauser & Pedrozo, 2017). The study primarily focused on examining and explaining concerns associated with private drones, with a relatively broad explanation for the reasoning behind greater support of state ones, though this study still provides an alternative viewpoint on the public's acceptance of police drones compared to private ones.

Komasova et al. (2020) surveyed 226 participants in the Czech Republic on drone use more generally and produced similar findings to the study from Switzerland, as well as direct parallels to research conducted in the United States in that participants supported police over private use of drones. Participants in the study were delineated between drone users and non-drone users. There was greater public support for the state using drones for rescue operations and traffic monitoring, though with slightly less support for both drones being used to monitor people and drones being used for commercial purposes such as delivery of goods. The biggest concerns and perceived risks associated with drones from the point of view of participants were drones unintentionally physically harming someone and potential privacy incursions (Komasova et al., 2020). The findings suggested that drone users tend to view privacy from a more legal definition of private and public space, while non-users also took the location and activity of the drone into account when considering the potential intrusion.

The findings from Lin Tan et al.'s (2021) survey of 1,050 participants in Singapore on public perceptions of drone use were to an extent distinct from the previously identified studies from Europe and North America, which suggests that cultural influences and context could play a role in influencing public perceptions of drones. While support for specific uses of drones varied, most participants were still receptive and accepting of wider drone use, showing almost equal support for both private and state use of drones. Researchers noted that the public view

drone use more positively if its use is directly beneficial to society, such as search and rescue and disaster management, with lower support for drone use that only benefits individuals or may impact individuals negatively, such as aerial photography by private citizens and police or issuing tickets to vehicles. Lin Tan et al. (2021) also drew direct parallels with the study conducted by Klauser and Pedrozo (2017): While participants in both countries expressed similarly high support for drones being used in policing, such as for search and rescue, Singaporeans expressed greater support for drones also being used by private citizens, such as for food delivery, compared to their counterparts in Switzerland. The study did however note some potential concerns regarding drone use, particularly the misuse of drones, the risk of physical injury due to drones crashing and the loss of privacy associated with being watched from the air (Lin Tan et al., 2021).

At the time of writing, research in Aotearoa New Zealand examining public perceptions of police drone use is very limited. The only study identified to date is a Civil Aviation Authority (2020) survey of 2929 participants regarding the more general use of drones within Aotearoa New Zealand, which included a brief section asking participants for their views on some police applications. The findings in this section were similar to those of other studies, with greater support for reactive use (chasing cars) over proactive use (crowd management), although in both cases there was still majority support (Civil Aviation Authority, 2020). There are several limitations with this study, including the study not reporting the reasons why participants felt that way towards police drones and that the participants were only disaggregated by age, gender, and their status as drone users, but not by ethnicity.

Another recent study conducted by Sabino et al. (2022) reviewed 30 studies on public perceptions of drones published between 2015 and 2021 from 15 different countries, in order to examine the main factors that influence the public's acceptance of drones more generally. They found that there were trends in the main perceived risks or concerns that participants expressed with drone use more generally, not just specifically by the police. These included drones being misused, such as for criminal or terrorist purposes, violation of privacy, drones malfunctioning and causing injury or damage, "legal liability" for when a drone user misuses a drone, and, to a limited extent, noise. Privacy was considered a key issue by most participants, irrespective of their background, considering that drones may be used to monitor personal and daily activities both in public and in private spaces, with a concern that they may contribute to 'Big Brother'-like state surveillance and monitoring (Sabino et al., 2022). Having said that, participants in these studies were generally more supportive of the government using drones for photography and recording, as opposed to much lower support for private individuals doing the same. The

issue of legal liability can be linked back to the difficulty and complexity of regulating drones especially considering that it is difficult to identify drone operators and to ensure accountability if rules are breached (Sabino et al., 2022). The study found that participants were generally more supportive of police or government use of drones for search and rescue, or disaster response and monitoring compared to other uses, such as in traffic policing. The researchers also found that there was greater support for drones being used in industrial areas, followed by recreational and commercial areas; drone use in residential areas had the least support which may be associated with the view that personal and private space should be free from intrusion. A limitation is the applicability of this study to the current study, as it focused on drone use more broadly, which meant that there was less of a focus on addressing and examining factors that are related to the police's use of drones more closely.

Overall, these findings show that public perceptions of drone use vary greatly and there is no single answer to whether police drone use is accepted or rejected by the public. A major limitation of the identified research is that it is all primarily quantitative in nature, and while some studies did include qualitative data, it was not enough to garner a deeper understanding of the reasoning underpinning participants' views. Generally, a trend can be seen in the studies where participants from North America tended to be more suspicious of police using drones (Anania et al., 2019; Heen et al., 2017; Sakiyama et al., 2017), while Europeans reported being more suspicious of private users (Klauser & Pedrozo, 2017; Komasova et al., 2020). In contrast, participants from Singapore were more accepting of both state and private use of drones (Lin Tan et al., 2021). This suggests that cultural influences, including trust in the government, play a role in determining the acceptance of police drones. Sabino et al. (2022) noted that perceptions and acceptance of drones could even vary by city, not just by country or region.

Privacy was a common theme in each study. While the importance of privacy for individual participants may have varied, it was nonetheless discussed and mentioned in each study as being key when considering public acceptance of police drone use (Anania et al., 2019; Heen et al., 2017; Klauser & Pedrozo, 2017; Komasova et al., 2020; Lin Tan et al., 2021; Sabino et al., 2022; Sakiyama et al., 2017; Saulnier & Thompson, 2016). This should not come as a surprise, as one of—if not the main—functions of police drones, as noted earlier, centres on the use of a camera and to an extent surveillance which directly impacts privacy. There was also a tendency in the cited research where participants were generally more accepting of reactive uses of police drones (e.g., search and rescue or disaster response) as opposed to proactive uses of drones (e.g., crowd management or issuing of speeding tickets) (Komasova et al., 2020; Sabino et al., 2022). The public's increased support for reactive surveillance could reflect the perceived benefits,

such as in the increased safety or reduction of crime outweighing personal inconvenience (Lin Tan et al, 2021), the immediate danger or threat such as in disaster response versus crowd management (Saulnier & Thompson, 2016). The public's support may also depend on the location where drones are deployed, such as search and rescue implying the use in remote places where there is a lower chance of personal privacy being invaded (Sakiyama et al., 2017).

The majority of studies examining public perceptions of police and private use of drones more broadly were quantitative in their approach and as a result did not prompt participants to provide in-depth explanations as to why they held the views that they did. While two studies (Anania et al., 2019; Saulnier & Thompson, 2016) were mixed methods, they did not offer a lot of insight into why the public held the views that they did regarding privacy and other mentioned concerns, focusing more on the findings arising from quantitative data.

Some researchers conclude that drones are still in their early phases of development and adoption and recommend that more research needs to be done to better understand public perceptions of drone use, including how context and other background influences, including political leanings and culture, may impact these views (Anania et al., 2017; Bentley, 2018; Heen et al., 2017; Lin Tan et al., 2021; Sabino et al., 2022). Anania et al. (2019), Heen et al. (2017), Sakiyama et al. (2017) and Saulnier and Thompson (2016) all concluded that the relatively novel nature of drone technology, and lack of public awareness of its use, may have contributed to the uncertainty surrounding police drone use and the concerns that participants had because of this, considering that people tend to be apprehensive about the unknown and that police drones and their mission may often have been misunderstood.

Other researchers suggest that there needs to be greater transparency and involvement of communities in decision-making so that communities can be better involved and informed about current and future use of drones by police (Coliandris & Coliandris, 2015; Saulnier & Thompson, 2016). Communication with communities will allow the police to develop a better understanding of what is the most appropriate use of drones and to ensure support from the public. Such an approach would be consistent with the principles of democratic policing or an equal partnership between the police and the communities they serve (Coliandris & Coliandris, 2015). Other researchers also support this sentiment suggesting there are benefits to educating the public about drone use and that public engagement can help establish trust and transparency about how and when drones are used by police (Sakiyama et al., 2017; Saulnier & Thompson, 2016). Educating the public may also allay fears and concerns regarding the specific

applications of drones or to address any doubts that they may have (Lin Tan et al., 2021; Sabino et al., 2022).

The current use of drones by the New Zealand Police

While the New Zealand Police do not specifically state when they began acquiring or using drones, a news article from the *New Zealand Herald* (Fisher, 2013) noted two known cases of police using drones around 2012, as well as reporting the purchase by police of a NZ$5000 "helicopter-style" drone for an early trial. This suggests that the New Zealand Police have been experimenting with and using drones for at least a decade, which would be consistent with the timing of the introduction of drones for policing overseas as noted earlier, albeit on a more limited scale than in the United States.

According to the "Technology Capabilities List", published by the New Zealand Police (2023), drones or remotely piloted aircraft systems ("RPAS") are a technology that the police presently use. In this list, the police provide a summary of the types of situations where they use drones. These include photography of crime scenes and vehicle crashes, search and rescue, and providing situational awareness during emergency incidents including for Armed Offender situations and for planning operations. According to the Police "RPAS capture high resolution images and videos. They provide the ability to gain a view by climbing vertically, and manoeuvring over short distances, providing a birds-eye-view of a place, person, area or thing" (New Zealand Police 2023, p. 45). It may be understood from this that the police use drones primarily to provide aerial observation.

The New Zealand Police (2020) published a "Proof of Concept" report as the result of a six-month long trial from around November 2019 to June 2020, where drones were flown 121 times throughout six districts of Auckland City, Bay of Plenty, Canterbury, Northland, Tasman, and Waikato which had 27 drones between them. The drones were used in a range of situations, such as locating fleeing offenders, search and rescue, surveillance, photography of crime scenes and other incidents including sudden death, arson, and serious crashes, along with providing situational awareness during Armed Offender Squad operations (New Zealand Police, 2020). The New Zealand Police (2020) also explicitly noted that drones were not used during the Covid-19 lockdown for general monitoring. These uses were primarily reactive in nature with the report noting if surveillance did occur, it was within the constraints of existing legislation and policy. Overall, the report found the trial to be successful at improving police capabilities and the safety of police staff, suggesting that each district could maintain up to six "Mavic 2"

drones (New Zealand Police, 2020). The report examined several specific case studies where drones were used and found that they offered a considerable advantage in understanding the environment and situation, while also reaching places that would otherwise be difficult to access and providing good aerial observation. There were also extra recommendations that there may be future opportunities to provide every police car with a "DJI Mavic Air" drone, use the "DJI Matrice 210" and "DJI Matrice 300 RTK" to provide greater capabilities during more demanding operations, and to use more capable and expensive models such as the "Aeryon SkyRanger" and "AeroVironment Puma"[8] at a more regional level with inter-operability with the military and fire service. The report also tracked media coverage of drones during the trial and found that, while there were several news stories published, there was no negative reporting or backlash from the public. The police drew direct parallels to existing public perception research from the United Kingdom, suggesting that the public most likely generally accept police drone use (New Zealand Police, 2020).

The New Zealand Police (2022) has also recently published their "New Technology Framework" which refines and updates the process which police undertake when adopting and developing new technologies for use in policing. The aim of this policy is also to ensure that any decision undertaken towards the adoption of new technology is both lawful and does not undermine the trust and confidence that the public holds towards the police. The framework does not apply to existing technology that only requires replacement without introducing new functionality or a new technology that does not impact police-citizen interactions or gathering of data. Some of the key features of this policy include asking questions such as: If the new technology can hold up to scrutiny within the police or by the public, does it align with the values and ethics of the police, is its use lawful, and is its use fair to the public including the community, whānau and the circumstances of individuals (New Zealand Police, 2022). There are 10 key principles, that are informed by the Treaty of Waitangi, and need to be taken into account when considering any new technology, which include: necessity, effectiveness, lawfulness, fairness, privacy, security, with the principles of partnership, proportionality, oversight and accountability, and transparency being of particular interest to this current study as they underline the need for including the public's view and consideration for their own personal needs and rights in relation to the use of police drones. These principles also include balancing and weighing the use of new technology against collective public interests and rights to privacy, safety, security and any other possible impacts and human rights. Transparency is also of particular interest as it requires that information on the use of new technology, including decision-making, assessments and evaluations, is made available to the public, where possible,

[8] The Puma is a "fixed-wing" drone, which has a design that is more reminiscent of a tiny plane with a front facing propellor, as opposed to the more commonly used quadcopter-styled drone of similar size.

and that mechanisms are in place for those negatively affected by new technology so that they can challenge decision-making. Overall, these principles are consistent with the previously identified recommendations and suggestions that researchers have come up with to ensure that drone use is fair and acceptable to the public.

New Zealand law and police drones

In their "Proof of Concept", the New Zealand Police (2020) outlined four key rules that have a direct impact on the use of drones by the police, which includes: Part 101 Rules, Part 102 Rules, Civil Aviation Act 1990 and the Search and Surveillance Act 2012. It should be noted that the Civil Aviation Act 1990 has recently been replaced by the Civil Aviation Act 2023 which governs the use of civilian aircraft in New Zealand, including granting the New Zealand Police and Civil Aviation Authority enforcement powers with the use of drones itself being directly regulated by Part 101 and Part 102 of the Civil Aviation Rules. Part 101 Rules outline the use of drones by users without certification and impose numerous constraints on when, where, and how drones can be used (Civil Aviation Authority, 2023). This includes not flying higher than 120 metres above the ground, flying at a safe distance from people and buildings, getting permission before flying over property, flying within visual line of sight from operator to drone, staying four kilometres away from any airports and staying clear of other aircraft. If a drone is used at night or within controlled airspace, then it must be flown in a shielded operation, where the drone remains below the top of a structure such as a building or tree and within 100 metres of it (Civil Aviation Authority, 2023). The New Zealand Police (2020) noted that certification under Part 102 Rules may allow police the "privilege" to bypass constraints of Part 101 Rules, including granting police the ability to fly over property without prior consent of the occupier, operate drones beyond visual line of sight to the pilot, fly unshielded at night and even operate within 4 kilometres of an airport. The New Zealand Police (2020) stated that the Civil Aviation Authority had already given Fire Emergency New Zealand the ability to fly drones over private property for the purpose of supporting lawful surveillance for a law enforcement agency without notifying the owner. The New Zealand Police (2020) also noted that certification under Part 102 Rules would require the police to conduct additional training and use specialised software in order to safely operate drones outside of Part 101 Rules. Overall, certification under Part 102 Rules enables police drones to have the similar privilege to fly over private property that other manned aircraft have (New Zealand Police, 2020). At the time of writing, the New Zealand Police already hold certification under Part 102 rules (Civil Aviation Authority, 2023). The Search and Surveillance Act 2012 regulates the entry of property, searches and surveillance by the police, with drones being considered a visual surveillance device under this Act (New Zealand Police, 2020). There are special rules aimed at drones, meaning in certain situations a drone might be trespassing, while a manned aircraft is not (New Zealand Police, 2020).

According to the New Zealand Police (2020) under the Search and Surveillance Act 2012, a police drone flying over private property may constitute aerial trespass if drones are used under Part 101 Rules with no prior consent being granted to police, while images taken by drones are subjected to trespass surveillance restrictions. Under the Search and Surveillance Act 2012, trespass surveillance is only allowed if the offence targeted by surveillance is punishable by imprisonment of at least seven years, the offence is against the Arms Act 1984, and certain offences specified in the Psychoactive Substances Act 2013. The New Zealand Police (2020) mentioned that drone use under Part 102 certification can bypass these constraints especially the need to seek permission to fly over private property, though a warrant is still required under the privacy requirements of the Search and Surveillance Act 2012, such as when a drone is used to observe private activity in private locations.

Furthermore, the New Zealand Police (2020) also noted that there are some requirements for the storage of drone footage as outlined by the "Australia and New Zealand Guidelines for Digital Image processes", which covers the capture and storage of original images, creation of working copies and the processing of images. The New Zealand Police (2020) noted that footage captured by drones might be treated like C.C.T.V. footage, which is uploaded to an online server in "evidence.com" or like forensic photography, which is stored on storage devices outside of the "Police Enterprise Network". The New Zealand Police (2020) concluded in their "Proof of Concept" that to guarantee that evidential requirements are met, a new system or "national storage capability" for the storage of evidential and non-evidential drone footage would have to be developed.

Understanding public perceptions of police

There are several important ideas that are vital in understanding community perceptions towards the police and potentially towards the police's use of drones.

Police often employ technologies with the aim of increasing social control over citizens and improving the perceptions of their legitimacy (Rossiter, 2019). One example of this is body worn cameras, which have been implemented as a way to enhance police legitimacy, by providing police accountability through the recording of encounters between police and citizens. With regards to drones, Rossiter (2019) notes that police have had to weigh up the increase in social control with that of public approval and perceived legitimacy of the police. In order to legitimise the use of aerial surveillance, police usually resort to the applications of police drones that have the greatest approval, usually search and rescue and anti-terrorism, as opposed to

monitoring public spaces which has considerably less public support (Rossiter 2019; Saulnier & Thompson, 2016). The New Zealand Police (2022) outline under their "New Technology Framework" that prior to making a decision about adopting a new technology, the police have a commitment to carefully weigh key concerns and considerations including the impact of the technology on the public's trust in, and perception of, the police and its "social license". These are ideas that are often closely associated with the concept of police legitimacy.

Police legitimacy can be defined as "… the belief that an authority is entitled to the power that it wields and that the public has confidence in the ability of the authority to wield that power properly" (Mazerolle et al., 2014, p. 10). While the police are established as the legal 'arm' and extension of the state, they are still dependant on the trust and cooperation of the wider public to exercise their duties (Hough, 2020). Legitimacy can influence the public in complying with laws even when the police is not directly present, as high regard for the police and the laws that they enforce influences the tendency of individuals to also accept and follow those laws (Hough, 2020; Mazerolle et al., 2014; Tyler, 2003). Legitimacy can also influence the willingness of people to cooperate with the police, such as to report crimes, participate in crime-prevention activities or directly assist in investigations but only if there is existing confidence and trust in the police, including positive experiences of being treated fairly (Hough, 2020; Mazerolle et al., 2014; Tyler, 2003). Legitimacy can give the police a level of autonomy and discretion in the ways they fulfil their duties of maintaining law and order (Tyler, 2003). However, obedience towards police may be based on fear and overall powerlessness in the presence of the coercive power of the police (Tyler, 2003), or perhaps from the expectation that police are delivering their services effectively, rather than from a sense of moral obligation or respect for the police's legitimacy (Heen et al., 2017).

There are two key viewpoints that are helpful in delineating the ways that individuals develop their perceptions on police legitimacy: the instrumental (sometimes referred to as empirical) and normative perspectives (Heen et al., 2017; Jackson et al., 2015; Ponsaers, 2015; Tyler, 2003). The instrumental perspective posits that people develop their views on the legitimacy of the police through their perceptions of the outcomes of police services, such as in terms of the police's effectiveness, reduction of crime, and the fair distribution of police resources under distributive justice (Heen et al., 2017; Jackson et al., 2015; Mazerolle et al., 2014; Ponsaers, 2015). The normative perspective focuses less on the outcomes of police services and more on the ways that police behave and treat people during individual interactions (Heen et al., 2017). The normative perspective suggests that views on the legitimacy of police are influenced by police displaying qualities such as respect, honesty, neutrality, lack of bias and fairness (Heen et

al., 2017; Jackson et al., 2015; Ponsaers, 2015). If people perceive police to be treating them fairly, then moral, personal and social obligations render cooperation with the police the sensible and right thing to do with the belief that police have people's best interests in mind while acting lawfully (Jackson et al., 2015; Ponsaers, 2015). In some cases, the two perspectives can directly 'clash' with each other, where the public may want the police to take extra measures in order to achieve results, such as by cracking down on political demonstrators or to cut corners, even if such methods do not align with legality (Hough, 2020).

Procedural justice is a key element of police legitimacy and can be considered as a "means" to attaining legitimacy, which incorporates fairness of the police's processes, including their treatment of the public and the quality of decision making (Jackson et al., 2015; Mazerolle et al., 2014; Tyler, 2003). Procedural justice is usually measured through police-citizen encounters and is based on four key principles, as outlined by Tyler (2003), which include police treating people fairly, having trustworthy intentions, demonstrating impartiality in their decision-making and giving people a voice. Under the principle of voice, which is often regarded as a part of quality decision-making, if police take the time to hear people's side of the story or provide opportunities to participate, such as providing the public opportunities to be part of the decision-making process, before police take action, then this may lead to people feeling more like they are being treated fairly (Jackson et al., 2015; Mazerolle et al., 2014; Tyler, 2003). Ensuring that citizens are continually treated respectfully and fairly through procedural justice can have the greatest impact and influence on the public's perception of the legitimacy of the police (Jackson et al., 2015; Mazerolle et al., 2014). Procedural justice is also a vital process in helping improve the perceptions that ethnic minorities hold towards the police, as they are often more mistrustful of the police than the wider public (Mazerolle et al., 2014). Distributive justice is another element of police legitimacy which also ties into the fairness of the police, albeit in relation to the distribution of police services across communities (Sifrer et al., 2015; Tyler, 2003). The public will view the police as acting justly in this sense if the police offer communities equal protection and treatment. While distributive justice is focused on the outcome of police procedures being fair, procedural justice ties into the procedures that are used to achieve outcomes being fair (Sifrer et al., 2015).

However, procedural justice has been criticised, particularly with regards to the nature of its causal relationship with police legitimacy being more uncertain than it has been claimed to be (Nagin & Telep, 2017; Thacher 2019) while advocates of procedural justice argue that it is the most well developed, effective and empirically supported model for achieving police legitimacy (Tyler & Meares, 2019). These critics acknowledge that police treating citizens fairly and

appropriately is important, however, they suggest that the evidence that fair policing, under procedural justice, improves the perceived legitimacy of the police and in turn leads to the public cooperating with police and laws may not be as well established or empirically sound (Nagin & Telep, 2017; Thacher 2019). Nagin and Telep (2017) suggest that people may be obedient towards criminal laws because many laws reflect moral and cultural values, as opposed to people obeying the law because they perceive the police to be a legitimate authority. Tyler and Meares (2019) suggest that more recent experimental and non-experimental studies confirm that there is a connection between procedural justice and the perceived legitimacy of police. Thacher (2019) suggests that the perceived fairness of the police's processes is not the only factor that influences citizen's willingness to cooperate with laws, with the threat of overt coercion playing a key role in influencing the decision for citizens to cooperate with police. Thacher (2019) notes that coercion is a fundamental part of policing and that it is not always possible to ensure procedural justice will always guarantee that an exchange between police and citizens is fair, especially as police in the United States have a lot of discretion for when they want to arrest, detain or use force. From these critiques it can be understood that procedural justice might not be the only factor that contributes to how people perceive the legitimacy of police, as there may be other cultural and social influences and perceptions of police that also contribute to perceived legitimacy (Nagin & Telep, 2017; Thacher, 2019).

While Saulnier and Thompson (2016) acknowledge that procedural justice needs more empirical corroboration in its relationship with legitimacy, in their study public perceptions of police drones such as the need for police to be transparent about drone use, was comparable with the principle of neutrality, which is a key principle of procedural justice. If there are misunderstandings about the way that drones are used, along with a lack of support for drones to be used in the first place, then this could certainly influence public perceptions of the police (Saulnier & Thompson, 2016). Since perceptions of police legitimacy influence the acceptance that the public has towards the police's decision making (Mazerolle et al., 2014; Tyler, 2003), and trust can create positive expectations of future outcomes (Jackson et al., 2015), police legitimacy is of importance to the current study and the perceptions of police drones. The underlying aim of this study is to give community leaders a platform to express and voice their hopes and concerns for police drones. It is especially important as there are many concerns regarding privacy and surveillance, which can undermine the public's acceptance of police drones and even harm the police's legitimacy (Coliandris & Coliandris, 2015).

The aim of this study to give participants the ability to voice their views of police drones and find out if there is a need for greater community involvement in ensuring police drone use is

appropriate and acceptable. This links to the concept of democratic policing, which is the notion that policing in a democratic society is underpinned by the democratic values of community engagement, consent, fairness, transparency, and accountability (Coliandris & Coliandris, 2015) which are reminiscent of procedural justice and police legitimacy. These principles are also consistent with the previously highlighted "New Technology Framework" of the New Zealand Police, where the police stipulate the need for transparency and clarity around the use of new technology under the broader model of policing by consent to ensure the further support and cooperation of the public (New Zealand Police, 2022). Democratic policing itself suggests that policing is intertwined with morality and social rights, which highlights the need for the police to have due consideration for, and fairly treat, the public they serve (Coliandris & Coliandris, 2015; Hough, 2020). Policing in democratic societies is often a fine line between the need for social control, enforcing laws and providing security, while balancing this against individual freedoms and liberties (Tyler, 2003). Applying democratic policing to drones highlights the need for transparency with how drones are and may potentially be used, including the participation of the community in decision-making which might help inform the police about the community's views on drone use and how drones should be used (Coliandris & Coliandris, 2015). Proper engagement and involvement of communities, including due consideration for their needs, through democratic policing could also help uphold and improve police legitimacy (Karstedt, 2015).

The current study

The New Zealand Police have already been using drones for at least a decade (see Fisher, 2013). Furthermore, experiences in overseas jurisdictions and the New Zealand Police's (2020) own "Proof of Concept" indicate that a wider adoption of drones is inevitable. Democratic policing highlights the importance of communication with the public allowing police to develop a better understanding of community views to ensure that the uses to which drones are put are supported by the public. Police legitimacy is also relevant to this current study as public perceptions of legitimacy of the police can influence the acceptance that the public has towards police decision making and expectations of positive future outcomes, in this case being the use of drones by the police. Yet research exploring New Zealanders' views regarding the use of drones by police is very limited, with only one study exploring perceptions of police drone use albeit as a very short section in a larger survey (Civil Aviation Authority, 2020). Therefore, the aim of this current research is to fill in this gap by exploring the views and opinions of Auckland community leaders regarding the use of drones by the police, including for the purposes of routine surveillance. It is hoped that this research could potentially help inform local police decision-making regarding the possible expansion of their drone programme, while also potentially identifying any concerns that police may have to address to ensure that drone use is acceptable

to the public. Community leaders were chosen as, in addition to their own individual perceptions, they might be able to discuss the views of their wider community. Therefore, it is important to hear the views of community leaders from a wide range of ethnic communities, as previous research has noted that cultural backgrounds have the potential to influence the perceptions that community members hold with regards to the police. It is also important for the current study to investigate the views of Māori considering that Māori community members are subjected to a greater number of interactions with police than any other community group (Cunneen & Tauri, 2016). Similarly, Māori are also over-represented in the criminal justice system and are often not involved in decision-making surrounding new policing policies or strategies, particularly those that involve their communities (Cunneen & Tauri, 2016). The New Zealand Police's (2022) "New Technology Framework" also mentions the importance of involving a Te Ao Māori perspective to consider the impacts of new technology on Māori including the involvement of Māori, Pacific and the wider public in co-design or consultation as supported by the Treaty of Waitangi's principle of partnership.

Chapter Three: Methodology

The purpose of this research is to explore the views and perceptions of Auckland community leaders regarding the use of police drones for routine surveillance. The research question guiding this is: What are the opinions of Auckland community leaders about the use of drone technology by police, including for the purposes of routine surveillance? This chapter discusses the research design that the social inquiry is built upon, including the processes that were followed from recruitment to analysis.

Methodology and methods

Social constructionism worldview

Due to the nature of this social inquiry, being interested in examining opinions and perceptions, an appropriate worldview to adopt was that of social constructionism. Gergen (2015) notes that in social science the terms social constructionism and constructivism are often morphed together by academics. The main difference between constructivism and constructionism is that the latter is focused on knowledge being formed out of social processes and relationships, rather than in the individual (Gergen, 2015).

Social constructionism assumes that individuals create subjective meanings in order to understand the world that they live in (Bryman, 2012; Creswell, 2009). Social constructionism further develops the notion that individuals in society develop their perceptions based on their own experiences, interactions, and interpretations of the social world, creating highly subjective knowledge (Creswell, 2009). Just like culture, views and perceptions are not static or definitive and are subject to changes and revision over time (Bryman, 2012). The social world is not predetermined and is a product of internal interactions and construction by social actors, which are highly subjective. This worldview also highlights that an individual's views are formed out of a complex relationship of social influences, such as cultural norms, combined with other historical and cultural contexts and experiences, as they interact with others socially (Bryman, 2012; Creswell, 2009). Social constructionism is therefore a direct contrast to the ontological position of objectivism, which suggests that social phenomena are external to individuals or social actors, with individuals' worldviews not influenced by interactions with people (Bryman, 2012).

To explore these views in qualitative research, Creswell (2009) states that the social constructionism worldview emphasises the use of open-ended questions which allow participants to be free in their expression. The focus is on exploring the complexity of views as opposed to categorising them into specific groups of ideas. Creswell (2009) adds that it is important for the researcher to acknowledge their own position and background as their individual, cultural and historical experiences influence the ways in which they interpret research and data. Bryman (2012) notes that a researcher's assumptions can also influence the formulation of research questions and the answers that they will receive as a result.

As a result, social constructionism research is largely qualitative and inductive, creating meaning based on the data collected as opposed to starting with and testing an existing theory (Bryman, 2012; Creswell, 2009). Some researchers who have investigated public perceptions of police drones have identified that the public's acceptance is often dependent on social and cultural influences and backgrounds, which vary from jurisdiction to jurisdiction (Anania et al., 2019; Bentley, 2018; Heen et al., 2017; Sabino et al., 2022; Lin Tan et al., 2021). These findings suggest that social constructionism is a suitable worldview to adopt.

Qualitative research type

Previously identified studies which examined public perceptions of police drone use are all primarily quantitative in nature, using questionnaires and surveys. While some did include a mixed-methods approach such as Anania et al. (2019), the majority focused on the quantitative data (Sabino et al., 2022). Quantitative research is useful as its larger sample size allows it to be more representative of the wider population; however, qualitative research is necessary in order to understand in-depth the rationale behind participants' responses by asking probing questions (Liamputtong, 2020). Qualitative research can be used to expand on existing quantitative findings, in order to explore past perceptions and investigate possible explanations for participants' views (Liamputtong, 2020). The current study aims to do just that by using past research as a foundation for the sort of questions that could be asked. This is especially suitable as Sabino et al.'s (2022) systematic review of perception studies found that there were many recurring themes throughout and patterns of thought shared between studies from different jurisdictions.

Methodology

Because this social inquiry is exploratory, given that little is known about New Zealanders' perceptions of police drone use, an appropriate methodology to adopt was qualitative description (also known as qualitative descriptive). The purpose of this methodology is to provide an accurate account of the experiences and perceptions of participants (Sandelowski, 2010; Kim et al., 2017). Doyle et al. (2020) notes that qualitative descriptive research naturally aligns with social constructionism, since the focus is on capturing individual experiences in their whole while acknowledging that views are all subjective and based on individuals' own contexts.

Sandelowski (2010) notes that although qualitative description research presents findings that are very close to the data, this does not mean that there is no interpretation at all. Rather the onus is on ensuring that interpretation, such as when looking at common themes or patterns beyond individual discussions, remains as close to the data as possible (Doyle et al., 2020). This is suitable for the current study as the aim is to find out what community leaders think about police drones in Aotearoa New Zealand while also diving deeper into why participants might hold such views, with qualitative description being suitable when little is known about the views being examined (Doyle et al., 2020). Since the emphasis is on giving participants a platform to express their views, while also accurately capturing and presenting said views, there are parallels between this methodology and the principle of providing communities with a voice under the process of procedural justice (Tyler, 2003). Qualitative description is also highly flexible, allowing it to be compatible with a wide range of data collection methods, the choice of which can depend on the specific aims and needs of the research (Kim et al., 2017).

Methods

In qualitative description studies, the most common methods of data collection are semi-structured interviews and focus groups (Kim et al., 2017). For the purposes of this research, semi-structured interviews were selected.

Unlike focus groups, semi-structured interviews are conducted individually with participants, as opposed to being in a group (Liamputtong, 2020; Given, 2008; Creswell, 2009). Focus groups usually have a much more open format with the interviewer acting as the facilitator and participants themselves leading the discussion. Generally, while focus groups may be able to reach a larger range of participants and opinions, semi-structured interviews on the other hand

can elicit more detailed and in-depth descriptions (Given, 2008; Liamputtong, 2020). This is suitable for the current study as the aim is to find out how participants perceive police drones and why they think the way they do. There was also a consideration for time and the difficulty of organising a suitable time for all of the community leaders to gather together for a focus group, rather than selecting an individual time that can be tailored to the specific participant.

Semi-structured interviews are also a good middle ground between more open and structured interviewing styles, giving a good balance between the freedom that participants have in expressing their views while also staying within boundary of the research question (Liamputtong, 2020; Given, 2008; Creswell, 2009). For the current study, an interview guide was developed split between four sections or topics, with the final section eliciting the potential views of the wider community (see Appendix D). There was also space for additional probing questions to be asked to prompt participants to elaborate on their responses, along with an emphasis on ensuring that there are no leading questions to avoid directing a participant's answers (Creswell, 2009; Given, 2008; Liamputtong, 2020).

Participants

Recruitment

Before continuing further with the study design, a very basic and fundamental question needed to be answered. What exactly is a community leader? The Collins Dictionary (n.d.) simply defines a community leader as "A leading figure in a community". However, this simple and straightforward answer begs the question, how does someone become a leading figure?

During the design phase of the study, two individual consultations were conducted with a Pacific community leader and a Māori community member. This was done to get insight and advice regarding appropriate recruitment and interviewing processes from individuals who have experience of, and familiarity with, the culture of at least some of the potential research participants. During this consultation, I asked how community leadership is understood within Māori and Pacific cultures. The Pacific community leader stated that, from a Pacific viewpoint, a community leader is someone who holds a wealth of experience and wisdom, combined with distinguished service to their community (personal communication, September 16, 2022). The Māori community member (personal communication, September 25, 2022) noted that, from a Māori viewpoint, a community leader is someone who has had a distinguished service record

with their community, someone who is closely connected to the community as an "Ahi Kā" and who keeps the home fires burning by living and working in that community. As a result, a community leader, for the purposes of this study, can be defined as someone who holds a leadership position in a community or community organisation with some sort of capacity to represent the interests of their community while recognising that how leadership is conceptualised may differ between communities.

The goal of the study was to recruit six to eight participants. This was achieved through purposive sampling, which is defined as the intentional selection of potential participants based on specific characteristics which can be informed by the main research question (Bryman, 2012; Kim et al., 2017; Liamputtong, 2020). In this case, the primary characteristic was that the potential participant is a community leader. Snowball sampling was chosen as a process to recruit additional research participants, which is where a small group of initial participants are asked to locate and invite other participants with relevant knowledge (Bryman, 2012). Participants were recruited to ensure a diversity of communities and community leaders were represented, such as in terms of gender, culture, and ethnicity. To achieve this, community organisations from a large variety of backgrounds including ethnic communities, churches, marae, mosques, local businesses and other community groups, were approached. Both the Pacific community leader (personal communication, September 16, 2022) and the Māori community member (personal communication, September 25, 2022) mentioned the importance that elders play as community leaders within Pacific and Māori communities, with the Pacific community leader emphasising that churches are an important place for recruiting Pacific leaders. Only seven people agreed to participate in this study. Ninety-three potential organisations and participants were identified and contacted, and all were logged and tracked in an Excel spreadsheet. This allowed me to keep track of which organisations and community leaders I had already contacted and if any had mentioned interest or confirmed a date for an interview.

Initial contact with potential participants occurred in one of three ways. The primary method of recruiting community leaders for this study was through making contact with community organisations and groups that were identified through public sources. This included searching the internet, with most community groups maintaining some sort of web presence. Community groups were identified by including keywords like "community", "association", "centre", "organisation" and "group". To narrow the search to within the Auckland region, specific geographic keywords such as "Auckland", "South-Auckland" and "Manukau" were added. Other sources included databases or directories that listed community organisations such as the

one operated by the Ministry for Ethnic Communities, Yellow Pages and Citizens Advice Bureau. Where individual community leaders' contact details were publicly listed, they were emailed an invitation to participate in the research along with the information sheet (see Appendix B). Where a leader's contact details were not publicly available, organisations were emailed instead, with a request that they forward the invitation, participant information sheet and the researcher's contact details to an appropriate community leader within that organisation to ascertain whether they were interested in participating. Potential participants and organisations were given four weeks to consider the invitation in the information sheet, although if there was no response, a follow-up email was sent after around three weeks to see if they are interested in participating or may have missed the email. Five participants were recruited in this way via their organisations.

Snowballing was another method used to recruit participants. Participants were all asked at the conclusion of interviews to pass on the details of the research and the researcher's email to other potential community leaders who could then contact the researcher if they were interested in participating. Participants were asked to do this, rather than giving me potential names and contact details in order to avoid the disclosure of personal information. Only one participant was recruited through snowballing. One further community leader was recruited via my personal network.

After agreeing to participate, participants were sent a copy of the consent form, interview schedule and a fact sheet which included a one-page overview of police drone use overseas and domestically (see Appendix E). Providing participants with this information ensured that they would be fully aware of the research process and could participate on the basis of informed consent. The interview schedule listed the main questions that would be asked during the interview. Participants were also asked if there are any cultural protocols that they wished to be observed, something emphasised by the initial consultation with the Pacific community leader, though most participants said no. Participants themselves chose where and when they wanted the interviews to be conducted, such as in office spaces, community venues or cafes. The emphasis was on finding a place that was the most convenient for participants. Participants were also given an opportunity to ask questions if they had any prior to meeting for an interview. Participants were also asked if they could discuss the interview questions with members of their community in advance so that the general feeling of their communities could be discussed.

A major challenge during recruitment was that this occurred in and around the month of November 2022, when many community organisations and leaders were busy with and in the lead-up to public holidays. Many potential participants also voiced their concerns about the anticipated length of the interviews (the participant information sheet suggested interviews would last up to 90 minutes) so in these cases it was mentioned that a shorter interview could be organised. All interviews lasted between 30 and 75 minutes.

Sample

Seven community leaders participated in this study. All of the participants were identified as community leaders either by their own organisation or by other leaders. Four participants identified as New Zealand European, one as Australian, one as Samoan and one as Māori. There was also a relatively even split gender-wise with four males and three females. In terms of their geographic spread, this ranged from the Auckland CBD, all the way down to the southern edge of Auckland's regional boundary with participants living within this large stretch of land. Names and other personally identifiable information have been changed to ensure confidentiality.

Pseudonym	Gender	Ethnicity	Location of community	Type of community
Cole	Male	N.Z. European	Auckland City	Resident association[9]
Frank	Male	Australian	South Auckland	Community centre
Gladys	Female	N.Z. European	Auckland City	Resident association
Jacob	Male	Samoan	Central Auckland	Ethnic community
Kowhai	Female	Māori	South Auckland	Marae
Percy	Female	N.Z. European	Auckland City	Resident association
Tony	Male	N.Z. European	South Auckland	Rural community

Data collection

Interview process and transcription

The interviews were conducted between November 2022 and February 2023. On the day of the interview, participants were greeted and provided with hard copies of the documents that they

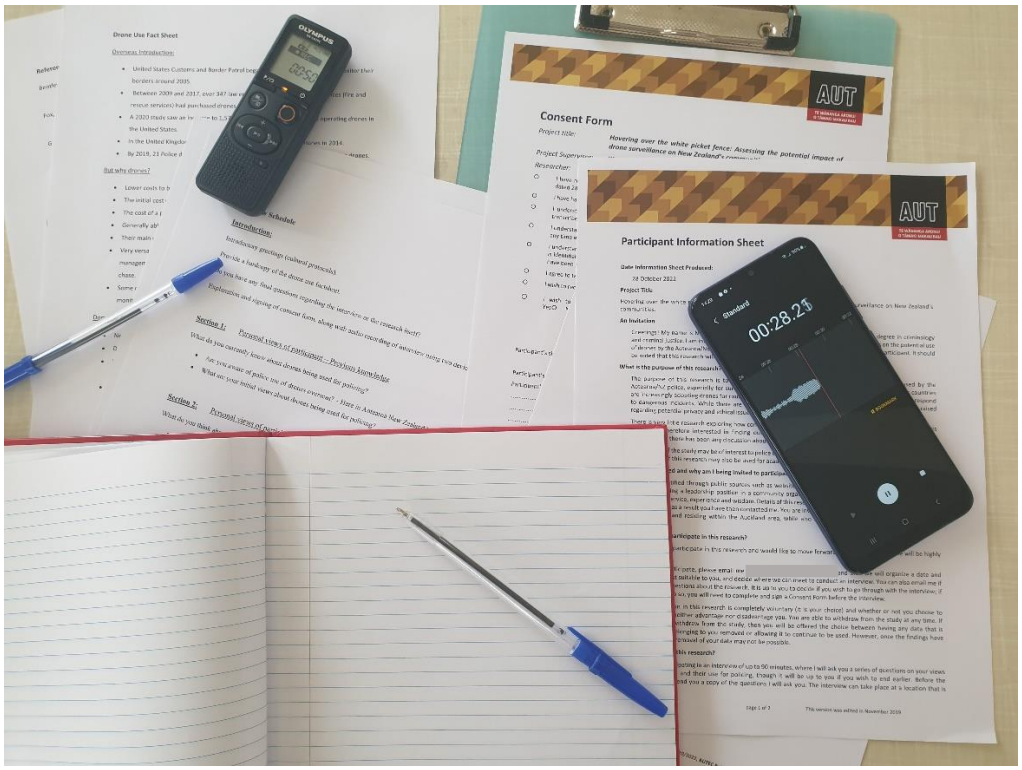
[9] Resident associations are community-led organisations that represent the collective interests of the local suburb that community members reside in.

had previously been emailed. This included the consent form, fact sheet, information sheet and interview schedule with some participants bringing their own copies. Participants were also provided with a small variety of snacks including chocolates and cookies. I told participants that they could also tell me if they wanted to stop or have a break, with me checking at around the half hour mark if they wanted to stop.

Participants were given time to read through the documents again if they wanted to refresh their memory and were given an opportunity to ask any final questions. During the interviews I made a point of emphasising that participation is fully voluntary and extra care was taken to ensure that participants were fully informed and aware of the research process. I reminded participants that they could stop and withdraw from the study at any time during the interview and that they could decline to answer any questions. This was followed by a brief explanation of the consent form and that with their permission the interview will be audio recorded. Here, I used two devices, my phone and a small audio recorder. This provided me a backup in case one device failed to record or if the recording became corrupted. Field notes were also taken down during the interview. Participants were given a quick overview of the interview questions, with an explanation that the first half of the interview is focused on their personal views with an additional section at the end asking if they have any views from their community. Figure 5 provides an overview of the material that I brought to the interviews, minus snacks.

Figure 5

An overview of what I brought to each interview.



The focus of the interview was on the main questions that were outlined in the interview schedule, with additional probing questions being asked which provided a wealth of useful information to the discussion. Some participants also raised interesting points that had not been raised in previous studies. Subsequent participants were asked about these additional points. As noted before, all interviews lasted between 30 and 75 minutes. This depended on how quickly a participant spoke, with some of the shorter interviews being able to cover more information than the longer ones. All participants had a lot to say regarding the topic of police drones and the research question. Because most participants were unaware of the current use of police drones in Aotearoa New Zealand, or in some cases overseas, examples were provided both from the fact sheet and the literature review. The focus was on having a mutual exchange of information so both parties could come away from the interview with more information.

After all of the main interview questions had been asked, participants were asked if there was anything else that they wanted to add. Participants were then given an explanation of what happens next. This included explaining that the recordings would be transcribed in a document and then sent to participants via email for review. Participants would have one week to make any amendments. This would be followed by analysis and then a final write-up. Participants were told that they would be provided with an executive summary of the findings, with access to the full thesis if they are interested.

Participants were provided with a $40 supermarket voucher at the end of the interview as a thank you. Participants were also asked if they could share the details of the research and my contact details with other community leaders, who could then get in contact if they were interested in participating.

In most cases participants also offered to answer any follow-up questions that might arise during transcription and analysis. Some even offered to do a follow-up interview, though this was not necessary as the interviews already provided a wealth of information. After the interview, additional notes about the interview were made in a research journal around initial impressions and brief summaries of key ideas.

I transcribed the interview recordings in separate Word documents. Extra care was taken to ensure the accuracy of the transcripts. This meant playing back the recordings at slower speeds,

pausing the recording regularly and replaying sentences. Generally, there was no issue with background noise as most interviews took place in relatively quiet places. Where background noise may have been a concern, the proximity of the recording devices during interviews ensured that there was still some clarity. In some cases, the same sentences had to be replayed several times to ensure the most accurate transcription.

Transcripts were sent to participants as soon as possible, with participants given a week to review the transcript and send their final approval. Six participants returned their transcripts, with some clarifying details that they may not have been certain about during the interview while others made some minor changes to the document text. Here I was also able to send a few follow-up questions and asked participants to clarify or even expand on any points that they had raised. Participants' responses to these requests for information were either provided in an email or included at the end of the transcript.

Data analysis

Analytical approach

One of the most commonly used methods of analysis in qualitative research is that of thematic analysis (Liamputtong, 2020) which is also often used in qualitative descriptive research (Kim et al., 2017). Thematic analysis itself is a relatively straightforward concept with the goal being to identify and analyse patterns of recurring meanings and ideas, which are organised into specific themes and sub-themes (Liamputtong, 2020; Braun & Clarke, 2006; Byrne, 2022). One specific approach that has been adopted for this study is that of reflexive thematic analysis. The reflexive aspect of thematic analysis in particular acknowledges the role that the researcher plays in interpreting the research data through generated codes (Byrne, 2022). Reflexive thematic analysis acknowledges the subjectivity of the researcher and fully embraces it as a useful tool for analysis that should be reflected upon when combining theory with the data and the interpretation of it (Braun & Clarke, 2020; Byrne, 2022). The qualitative description approach in turn highlights that interpretation remains as close to the data as possible (Sandelowski, 2010; Doyle et al., 2020). This way participants would be able to recognise their views if the researcher's interpretation is not too far detached from what was said. Social constructionism in turn fits in by establishing the importance that subjectivity plays in the way people perceive the world around them (Bryman 2012, Creswell, 2009). As a result, it is important to highlight and disclose the theoretical assumptions that informed the analytical stage while reflecting on how the researcher's own views and background might have

influenced analysis. While this was something that I did in the positionality statement and when I was choosing appropriate approaches and methodologies to guide my study, I still revisited and reflected on my own assumptions and subjectivity throughout the process of analysis. In particular it was important to remind myself that the aim of my research is to explore the views that my participants hold towards police drones, rather than coming in with a preconceived notion that I wanted to prove right, such as potentially focusing too much on the benefits of drones while ignoring the critiques and concerns.

In their original paper Braun and Clarke (2006) outlined a six-phase guide for conducting thematic analysis which includes familiarisation, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and finally producing the report. However, because analysis is a highly iterative process, many of the steps will most likely be revisited with analysis constantly changing and updating (Braun & Clarke, 2006; Byrne, 2022). This occurred many times in my own analysis, with me going back and forth throughout the steps in order to revisit themes, patterns and returning to some of the initial codes to confirm their coherence and value. The six-phase guide outlined by Braun and Clarke (2006) for thematic analysis, and also covered by Byrne (2022) who developed it from their later publications on reflexive thematic analysis, were very useful in helping guide my own analysis.

The first phase of thematic analysis is to familiarise yourself with your data in order to gain a deep and thorough understanding and knowledge of the text (Braun & Clarke, 2006; Byrne, 2022). To this end, each transcript was read and reread several times to establish familiarity with the text. It was also useful to review notes that were taken during and after interviews to pick up on things that the transcript could have missed such as facial cues and mannerisms, which offered great insights into how participants felt. This step is also marked by the creation of notes to highlight key and interesting aspects of the data (Braun & Clarke, 2006) which was combined with my field notes.

The second step is generating initial codes, which can be defined as succinct and straightforward labels or descriptions that are given to pieces of data which are then used as the foundation for developing themes (Byrne 2022; Braun & Clarke, 2006). Initial coding was focused on creating as many labels and descriptions as possible, focusing on coding the data as opposed to trying to sort the data out, at least initially. This was done using comment boxes in a Word document, which allowed me to highlight sections of text and use the “reply” function within comment boxes to update codes. Codes were revisited and reviewed several times, with a

focus on refining them and excluding some codes that did not contribute to answering the research question either directly or indirectly. During this time, I also maintained notes in my journal, keeping track of any changes and potential patterns that I could identify. It was important to ensure that I did not jump straight into generating themes, as noted by Braun and Clarke (2020), who state that data should not be coded around initial themes nor should themes be generated before coding even begins; rather codes should help inform the themes.

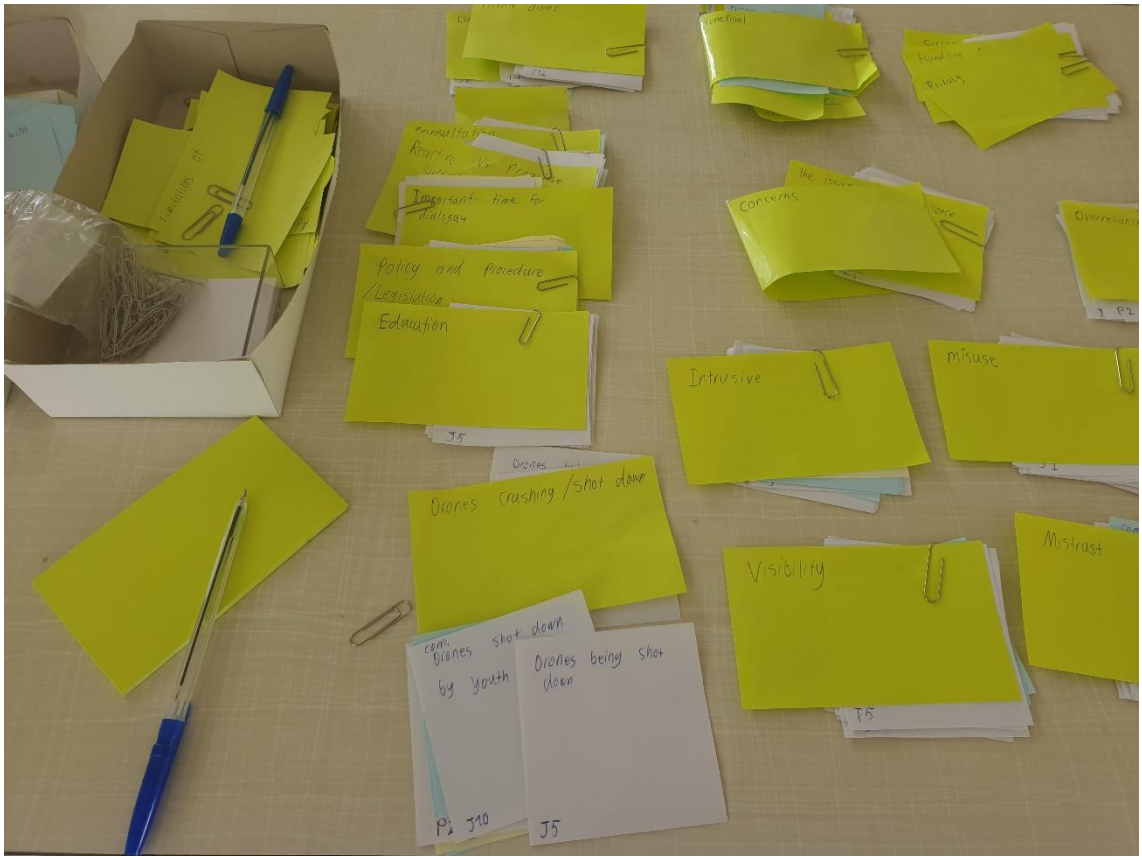
The third phase is that of generating initial themes and this is where all of the coded data is sorted out and grouped into common patterns or overarching themes (Braun & Clarke, 2020; Byrne, 2022). When it came time to create themes, I came across some major issues. For one, I had a huge number of codes, and it was getting really hard to keep track of each one. Secondly, I expected the themes to constantly change as they were refined, with codes potentially changing themes and vice-versa, which would be hard to keep track of in a Word or Excel document. I decided to take my codes and start writing them on sticky notes. This visual aide also helped me to more easily organise and sort different codes. On each sticky note I wrote the exact code, followed by the first initial of each participant's pseudonym and the page number of the interview that I found it on. If this was more of a community view, a small label was added in the corner to indicate this. This was a very arduous process, but one which also offered me an opportunity to revisit my codes again, which gave me a much better idea of which ones to include or exclude, which resulted in me revisiting the previous phase. I also created new codes or combined existing ones together. I ended up with seven stacks of notes, each grouped by participant, and even had to go through several different packs of sticky notes. I was revisiting and reviewing all of the transcripts during this process, having them close by, which allowed me to continue to develop a strong familiarity with each text and ensure that my interpretations were close to the data. This also made it easier when it came to developing initial themes. I took all of the codes and started arranging them into groups of common ideas and patterns. To keep track of each group of notes, I would bind the sticky notes with a paperclip to a larger piece of paper that had a theme written on it.

The fourth phase is that of reviewing themes which involves rereading individual codes under each theme to check their closeness to the data and then rechecking the themes themselves against the dataset (Braun & Clarke, 2020; Byrne 2022). During this phase I also revisited the previous phase in order to review potential sub-themes. This meant approaching each "themed" stack of codes individually and then grouping those codes into even more specific patterns. This was also where it was important to remember the reflexive part of thematic analysis and to keep track of how my own interpretations and analysis could influence the themes and ultimately the

findings. Each sub-theme was written on a rectangular note with codes attached to the back of them by paperclips. Then two rectangular pieces of paper were taped together in order to create a sort of sleeve on which the individual theme was written and into which sub-themes were placed. This can be seen in Figure 6 below. This again was a highly iterative process with themes and sub-themes constantly shifting and changing. Some codes transitioned between several themes while some themes were split up or combined together. For example, one initial theme I had which was simply called “limitation” ended up being fairly short and it became obvious that some of the codes could actually be split up between the themes of “benefits” and “concerns”. These themes were further redeveloped, with “benefits” and “concerns” being split up further so that they could tell a more coherent story. I ended up with a relatively organised set of themes and associated sub-themes.

Figure 6

The final end-stage of creating themes and sub-themes.



With the themes and sub-themes organised, more or less, and refined, it was time to proceed to the next phase. The fifth phase involves defining and naming themes, and where themes are refined in order to delineate them from one another and that they clearly describe their narrative (Braun & Clarke, 2006; Byrne 2022). Here, themes are also checked to ensure that they are consistent with the entire dataset and codes. This was something I already had started doing in

the fourth phase where I reviewed transcripts when I was not sure about one of the codes and needed to clarify things. During this phase I began using an Excel spreadsheet, with column headings, including the participant's initial, page number, theme, sub-theme, code, and the full quote. I revisited each transcript and pasted each piece of coded data into the spreadsheet, which gave me another opportunity to review my dataset and codes. Each theme was colour coded and organised by theme and then sub-theme. I continued making notes in my journal while noting any changes that occurred. Because analysis is highly iterative, I gave myself an opportunity to revisit my individual codes against the transcripts, with some codes being excluded and some included back. A couple codes were moved to other sub-themes or even themes. In the end I ended up with about 400 individual codes.

After giving my themes and sub-themes a final check, I proceeded with writing up the findings. This is part of the sixth and final phase of the process which includes writing up my analysis and using supporting quotes to create a story that the data tells in a coherent and logical sequence (Braun & Clarke 2006; Byrne 2022). Since reflexive thematic analysis is an iterative process, many of the themes were further developed and amended during writing, as I picked up on new ideas and ways to represent the views of participants. Here I also had to decide which quotes would be used to represent the themes and sub-themes, as it was not practical to include all of the 400 codes. The final result of this stage can be seen in the following chapter.

Ethical considerations

One key ethical consideration that is important to disclose is the impact of my role as the researcher on the study. This includes reflecting on my own influences when approaching reflexive thematic analysis (Braun & Clarke, 2020; Byrne, 2022) and ensuring that my interpretation is as close to the data as possible under qualitative description (Sandelowski, 2010; Doyle et al., 2020). For me personally it was important to have the right mindset in my approach to the study. Rather than go into the research with my own personal view of drones being beneficial and that they should be used, I went in trying to understand what community leaders think and why they hold these views. It was of particular importance that I be as impartial as possible, which is why having that mindset of conducting an exploratory study, where a theory develops from the data, was important. While it was not possible to be completely detached from the study, as interpretation often requires the researcher to take some sort of position, I could still work towards impartiality if I valued each viewpoint equally.

Because this research involved human participants, there were strict ethical considerations that needed to be considered before and during the conduct of this research. While many ethical considerations were enacted during the individual stages of the study, the key considerations are briefly summarised below under the three key principles: Partnership, participation and protection.

Partnership

Participation in this study was completely voluntary and done on the basis of informed consent, with this point being reiterated to participants prior to and on the day of the interview. Participants were provided with detailed information (see Appendix B) regarding the nature of the study, its processes and the interview questions (see Appendix D) to ensure that they were prepared and informed. It was important that participants were at the centre of the research, something that was reinforced by the qualitative description approach (Sandelowski, 2010), which helps ensure that the most genuine accounts and responses were provided (Liamputtong, 2020). Participants were also given opportunities to withdraw from the study, refuse to answer questions and to take rest breaks during the interview. Koha was given in the form of a $40 supermarket voucher as compensation for the time participants spent for the study. It is also important that, after the completion of the study, participants will be given an executive summary and an opportunity to access the full thesis.

Participation

The main role of participants in the study was to share their views and perceptions of police drones. With the qualitative description approach, there was an added emphasis on ensuring that the reporting of findings remains as close to the data as possible with participants being at the forefront of the study (Sandelowski, 2010). In support of this, participants were provided with a copy of the interview transcripts, with some taking the opportunity to review what they said and to make amendments if they wanted. There was also a focus on having a mutual exchange of information where possible, with participants being provided with a fact sheet (see Appendix E) and given examples and explanations for some of the ways in which police drones are used.

Protection

Since this study used semi-structured interviews as a basis for data collection, it was important to consider and maintain confidentiality of participants, especially since anonymity was not possible due to the face-to-face nature of interviews (Creswell, 2009; Liamputtong, 2020;

Bryman, 2012; Given, 2008). This was particularly important as participants could reveal sensitive or highly personal information and details, with confidentiality minimising any potential risks that could arise from this. To manage confidentiality participants were assigned pseudonyms, with some participants choosing their own, which were used in all research outputs including transcripts. To ensure that any perceived power imbalance between researcher and participant was mitigated, participants were made aware of their ability to withdraw from the study and refuse to answer questions (Deckert, 2017). Participants were able to choose what information they wished to disclose as gatekeepers of their own knowledge. Prior to interviews, participants were asked if there were any cultural protocols that they wish to be observed, with most saying no.

The study was approved by the Auckland University of Technology Ethics Committee (AUTEC) on October 25th, 2022 (reference number 22/292).

Conclusion

This chapter identified and outlined the research design of the study including the social constructionism approach and qualitative description methodology that guided the initial design. This was followed by identifying and examining the data collection method of semi-structured interviews. The chapter provided a step-by-step explanation of the recruitment, data collection, and analysis processes. This was concluded with a summary of the key ethical considerations and limitations of the study.

Chapter Four: Findings

> Let your data speak for itself and these will be the results of your research. This is all the data, and it will speak for itself… Sometimes I think the researchers, technology engineers, run ahead of the people, and I have a concern about that. So, when people are imposing ideologies based on research and technology, it needs to be well considered, especially on the people it impacts. – Kowhai

This chapter presents findings from semi-structured interviews conducted with seven community leaders throughout Auckland. This exploratory study was guided by the principal research question: What are the opinions of Auckland community leaders about the use of drone technology by police, including for the purposes of routine surveillance?

Several key themes were evident in the interviews. These included the perceived benefits and concerns about police use of drones, as well as potential solutions that police, and other relevant organisations, could explore to ensure that the use of drones by police is acceptable to communities. The perceived benefits included the potential for drones to improve police efficiency by allowing police to do their job more effectively and improve safety by directly and indirectly saving lives or deterring crime. However, participants also raised concerns about police use of drones. These concerns included the practicalities of police drone use, including the dangers of police overreliance on drones and any perceptions that drones are a silver bullet to preventing and responding to crime, the impact of drones on privacy and concerns about police drones being mismanaged and misused by police and its employees. In response to these concerns, participants discussed what would be the best way forward; the key message from participants was that communities need to be involved in decision-making processes surrounding police use of drones, through consultation and partnership. While the focus of the interviews was on police drones, discussion also arose surrounding private drone use, with participants raising similar concerns to those raised in relation to police use of drones. These themes and findings are presented in this chapter.

Improving police efficiency

> I generally don't have negative feelings about the use of police using drones, I think it's probably more of a positive thing. It would free up frontline staff and give them a greater range of accessibility to monitor and to solve crime. – Frank

When asked for their initial views of drones being used for policing, participants often began their discussions by mentioning the potential benefits. Out of these discussions, a key point was that drones can improve police efficiency by allowing police to do their job more easily and/or effectively. Specifically, participants perceived that drones offer the police new opportunities and abilities to conduct search and rescue, respond to crime and potentially conduct surveillance, and offered their views on the comparison between drones and other surveillance technologies such as helicopters and C.C.T.V. The community leaders identified drones' inconspicuousness, agility and ability to provide situational awareness as key advantages in this regard, along with the potential for drones to improve police capabilities through more efficient use of resources. Each of these four sub-themes are discussed in turn below.

Inconspicuousness

Participants discussed drones' inconspicuousness from two perspectives: Firstly, the fact that drones are more inconspicuous than helicopters which offers police better opportunities to conduct surveillance and, secondly, that drones are quieter alternatives to helicopters, which are disruptive either to participants themselves or their communities.

Participants all agreed that drones are considerably quieter than helicopters and could be a less noisy alternative. Frank, Percy and Tony expanded on the idea that drones have a reduced noise profile by suggesting that this could be a direct benefit for surveillance. Drones could be used to conduct surveillance more discreetly from the air, whereas a helicopter may be too "noisy" and can alert offenders[10] in advance:

> You know, if there was a giant weed crop or something, they needed to get better pictures, I'm pretty sure a helicopter could manage that just as well. But it's noisy, so people in there kinda going like, 'oh shoot, we got a helicopter above us'. So criminals know then that they are under suspicion, probably. – Percy

Tony mentioned that in rural areas it is difficult for police to survey offenders, as using a police car to approach will give the police away due to the open and wide terrain, which will alert offenders that police are coming:

> People go off the grid into farm areas and rural areas, and they go in cooking meth, growing cannabis. It's harder for police to get in there because it's a long track. An example that is back in my day, I'd have to drive 5Ks on a four wheel and go over a grade. Like there's no way you wouldn't see [police] coming. On a drone you're eliminating headlights coming down or anything like that. It's just a safer option too obviously to capture people doing this to our communities. – Tony

Jacob, Frank, Kowhai and Percy noted that helicopters are very loud, and this can be disruptive to communities. Drones may be more acceptable to the community as they are less intrusive

[10] For the current study the term "offender" may also refer to an alleged offender who has not been convicted of an offence.

than helicopters. Helicopters flying overhead at night can wake people up when they should be sleeping, which can also be disorienting for individuals. Percy noted how she keeps waking up at night because of the seemingly "constant" noise; Kowhai made a similar point that people should be resting at night and not be woken up by helicopters. Jacob mentioned how the noise of helicopters overhead, in addition to police sirens and bright lights, is very disruptive for his community:

> He [community member] lives in part of Auckland where in his words, police sirens is a constant, every night, every night. And the Eagle helicopter will be hovering, he said one night the torch was so bright, that they could see a whole lot of things. It was very disruptive. Mainly because helicopter was here, sirens were going off somewhere else, community was confused as to what was actually going on. – Jacob

Frank and Tony had noted that they and/or their communities had potentially grown accustomed to the background noise of helicopters. Tony mentioned how he is from "South Auckland", where there are already high levels of background noise, and as a result the noise does not bother him or his community at all. While Frank was personally concerned about the noise, he also noted how there is already excessive levels of it within his community and so they are not as concerned about it since they have grown accustomed to it:

> If you sat at my office, at my desk, and listened to the boomboxes going past in cars during the day. Noise isn't an issue in South Auckland, then the more genteel suburbs. – Frank

Cole noted that helicopters do not fly frequently enough over his community to be considered noisy or disruptive.

Agility

Another advantage that was mentioned was with regards to the agility of drones, especially when compared to helicopters. Kowhai, Jacob, Cole and Percy mentioned that drones are smaller and more agile than police helicopters. This agility allows drones to reach places that helicopters cannot, which can include getting close to and landing on rooftops that helicopters cannot reach:

> … there are places where drones can go where helicopters can't. For example, a drone could land on that roof straight across from us, across the road there, but perhaps that's not a pad for a helicopter. – Kowhai

This agility also offers drones the opportunity to get up much closer to conduct surveillance or take images of offenders:

> I imagine that helicopters would get a better overview, but a drone could get into the places that [people] can hide [in]… with a drone, you're gonna get closer to take photos of the people when you're doing it. – Cole

In similar vein, Jacob noted that drones can also get close to crime scenes that may not be accessible to police officers on the ground:

> Drones can be useful, can be very beneficial, in terms of say for example, say we cannot get into the site of a crime, okay, be it a family abuse or family violence, behind locked doors, locked gates… We do have some places that are locked up, the fences are so high, police and their police dogs cannot jump the fences. – Jacob

Frank discussed how the police could look into using larger sized drones to ferry supplies out into the field. Police drones could potentially aid and reach rescue workers especially if they are in a remote area:

> Could police use drones alongside the ambulance services to drop off supplies? To use drones in search and rescues, could they invest in larger drones to ferry out supplies where there is a search and rescue mission going on. Because often times areas are inaccessible, and you have to send out policing supplies to those areas. – Frank

Efficient use of police resources.

> … we don't have enough frontline police, we don't have population or the tax base to employ a greater amount of frontline of police, so as we move closer to the 21st century, we're going to have to rely on technology to do that. – Frank

Another key benefit discussed by several participants was the potential for police drones to enable the police to make more efficient use of police resources, which includes the police's ability to invest in additional resources and respond to emergency incidents.

This can be achieved in numerous ways, one of which is with the lower costs associated with buying and operating drones. Gladys, Cole and Frank all noted that drones are considerably cheaper than helicopters (a point made in the Fact Sheet), so using drones could cut down on police operating costs. Cole suggested that since drones are a cheaper alternative than helicopters, while also being able to do similar things, investing in drones would be "paying for itself". Drones offer the police two benefits at the same time since: Police could be increasing their capacity of resources, while using a technology that is a cheaper alternative to other existing resources:

> I think it makes financial sense… and increases the capacity of the police and gives them another tool in their arsenal… it'll be cheaper than some other resources that we currently have. It means that we would have a greater range of resource, and a greater capacity of resources. – Frank

Gladys noted that drones offer "a lot of savings" as an alternative to existing policing resources such as police cars, on top of previously discussed helicopters. Some of these savings include the social saving of reducing crime and the reduced cost of using drones rather than helicopters:

> … I think it produces a saving as well, because you're saving a lot. There's a saving to be made from drones. Not only as a social saving of reducing crime because you can capture people, but also saving financially instead of using manpower, well, there's lots

> of savings. There's the saving of crashing the car from a police chase, there's the saving of using a helicopter, when the drone can do the job. – Gladys

Frank and Tony discussed ways in which police drones could potentially increase the capacity of police staff, especially if they are able to achieve tasks more efficiently and require less "manpower". Frank noted that "[Police using drones] would free up frontline staff and give them a greater range of accessibility to monitor and to solve crime." Tony also added that drones are able to locate offenders and investigate incidents more efficiently without requiring as many police officers, which may also free police staff from the frontline:

> … Especially if you're trying to locate a person, [drones] have all those sensors on there so it's probably an easier and simpler way, and time effective. Not having to send out ten people to look for one person you can send a drone out. You got that thermal camera, there's a how. So yeah, with resources and things like that I think it's really beneficial… You know, it takes police around off the frontline as such. – Tony

Cole and Gladys also suggested that drones could contribute to increasing efficiency by cutting down on police response times. Cole pointed out that, unlike a police car, a drone will not get stuck in traffic so it can arrive to an emergency more quickly. A drone in the air could potentially reach the site of a crime or incident quicker than a police car on the ground:

> Somebody calls the police, but it's usually everyone disperses by that point, because it takes maybe 20 minutes for a car to come. So, I think if they could cut down that response time, would be really good. So, if they already have a drone flying around, they can see the footage and oh yeah, that drone is filming. – Gladys

Tony, Cole and Gladys also expanded further on the idea of police drones being used to respond to an emergency incident. Tony also noted that police drones are probably a more "effective" and "simpler" way of checking up on a 111-emergency call without having to be there in person or with a patrol car. Both Cole and Gladys noted that once police drones reach an emergency incident, they could start recording footage of offenders which itself could help police gather evidence especially as people may disperse by the time police finally arrive:

> So, if [police] already have a drone flying around, so they can see the footage and oh yeah, that drone is filming. You might want to just film it and go there later… And the footage is useful if that person is getting smashed up, and they've got footage of it, because by the time police come, the culprit may have scampered. – Gladys

Tony, Frank and Jacob all agreed that thermal imaging could improve the police's response and allow them to more easily locate a fleeing offender.

Situational awareness

One of the points participants emphasised was the idea that police drones can be used to better monitor and understand locations from the air through situational awareness. An aerial overview could allow the police to do their job more easily and offer them insights that they might not get from the ground, such as potential risks.

Drones could also be used to assess the situation before police officers arrive and help determine the level of response required:

> … I imagine they could be used to determine whether or not there needs to be a larger response. So, they could be used as a front force with a camera, to say we've had a report of an incident, let's go and have a quick look at it via drone. Do we need to be there in a fuller force? Send that video back so that they can say, this is what's happening yep, we need to get some squad cars. – Frank

Being able to better assess a situation could help the police to be better prepared and aware of any possible risks or threats. Percy noted that drones may allow police to see things that they normally cannot see from the ground, and avoid walking into danger. Understanding the risks could even potentially help prevent injury or harm to bystanders:

> So, in a reactive sense it might help confirm detail before potential injuries, if they're armed or whatever it is. So that might rule out any or lessen the risk if it might be able to identify, "hey I've seen a couple little kids in there watching TV". The drone might have been able to see that, whereas a cop outside wouldn't necessarily, so you know, may not want to be busting in there all guns blazing, knowing there's kids in there. – Percy

Percy and Jacob underlined the importance of having an aerial view on things and how this can assist the police. Percy noted that an aerial overview could enable the police to more easily locate an offender who may be hiding in a group of houses. Jacob also discussed how drones equipped with thermal cameras could aid police on the ground in pursuing someone fleeing on foot. He also saw the value of drones in terms of police being able to reconstruct the scene of a road accident more easily if they can see the layout of the road from the air:

> … trying to reconstruct an accident, maybe on the motorway. You can't really see all the different angles on a lateral level. So, if you just lift your eyes a little higher using a drone, then of course, you will be able to see the layout of the road more clearly, the marks and everything. And maybe a quick chasing of somebody. Somebody on foot, who is hard to capture… Thermal, yeah. So, if those can be used, again to assist the ground troops. So, they will be running around but a message will be transferred from that, from the machine to the people on the ground and say, he's just 20 metres ahead of you. – Jacob

Jacob mentioned how one of his community members saw an incident during one weekend and wished that police had some sort of drone in order to see what he saw from an elevated position:

> … beneficial to have an extra eye in the sky… so for that specific purpose, yeah, it's important to have choppers … my neighbour says that there was an incident in our neighbourhood one weekend. And he said, I wish there was a drone here to capture what we could see from the top of our house, that the police and the police dogs could not see. – Jacob

Improving safety

> … yeah, other side of things is definitely the safety side and making sure that people can walk out of their property without being mugged or things like that. – Tony

Safety was another key benefit that was discussed by all participants. Discussions revolved around how police drones may contribute to saving people's lives, and also offer safety and security from offending or crime. In some cases, participants offered their views on the comparison between drones and other policing tools that are currently being used to improve safety including C.C.T.V. and helicopters.

Preservation of life

Participants discussed how drones have the potential to directly save people's lives and minimise injury. For all participants, if there is the potential to save lives, then police drones should be adopted by the police:

> From a health and safety perspective I think drones definitely can be useful… human safety is important, the safety at the end of the day should be the first thing on our minds when we consider when, how, we engage with drone technology. – Kowhai

Participants were all in agreement that drones are useful and should be used in search and rescue, especially when people's lives are at stake. While helicopters have been used in search and rescue operations, drones can be a more convenient way for rescuers to access and search hard-to-reach places:

> I think it's beneficial, especially if you're coming to places like mountains, down the valleys, areas that people can find to be too risky to go into. Police would've used helicopters before I suppose. Drones are just as more convenient ways of getting into those hard to get to places. – Jacob

Kowhai drew in particular on the example of the "Pike River Mine" disaster in 2010 and wondered if a drone was, or could have been, used to monitor the gas levels within the mine, which was one of the main factors that delayed the rescue efforts. She argued that understanding the situation better and safely through the use a drone may have allowed rescue workers to mount a quicker response that could have saved lives:

> I imagine like if they had drone technology perhaps then it may have been one way to measure gas levels and film in real-time what was happening inside the cave… there was potential to save lives and so as awful as that experience has been and will continue to be for those, especially the families who lost their loved ones there are lessons we can learn from that, and those lessons will help us to think about ways in which we can be much more proactive in our responses and timely. Having timely responses is critical in an emergency. – Kowhai

Several participants also discussed how drones could be used to improve the safety of police officers. Jacob noted that since drones are operated remotely, they can allow police to observe and search risky environments and properties without putting police officers in harm's way. As an example, Jacob mentioned the recent Wellington protest[11] in early 2022 where police officers were often put in harm's way by protestors throwing objects such as rocks at them. Jacob argued that drones could have been used to monitor the crowds remotely without having to put police officers in danger while also improving the general sense of safety during the event:

> … those protest march, like the one in Wellington recently. Drones could've been used more to understand what was coming in and what was coming out … without having to put our men and women in the frontline, into danger's reach. We saw how some of [the protesters] were throwing rocks at [police officers]. And some of those gas canisters, were thrown. Those sorts of things could've been understood much better if there was an aerial vision of the outlay of the whole camp. If it's used for that purpose, mainly for safety, because safety of our police should also be the safety of our people. – Jacob

Gladys, Cole, Tony and Frank highlighted the potential for police to use drones to pursue vehicles, as a safer alternative to police car chases. As Tony pointed out, a police drone could safely follow offenders, while police cars backed off, which could minimise the risk of injury or death:

> Where drones could be beneficial? Definitely the police chasing one where you have a high-speed pursuit and things like that. When you have young teenagers stealing cars these days and the police are chasing, they don't know how to drive, they crash, they die. So, if like a drone, if they backed off and a drone could fully follow them to wherever they go, it's just the safer option and people would still be alive. Families wouldn't be hurting; communities wouldn't be grieving. – Tony

Gladys also noted that beyond minimising the risk of injury for the police officers or offenders themselves, using drones as an alternative to police car chases could also avoid the potential injury of innocent bystanders.

Improving community safety

Most participants discussed how drones could be used to improve security in the community. Drones are very versatile and one application that participants mentioned was that they could be used to respond to emergency incidents or to even directly contribute to tackling crime. Participants noted that drones could respond to a call quicker than a police car, which could allow them to reach an incident early. While the police drone might not be able to directly apprehend a suspected offender, its appearance could at the very least potentially deter further offending, as a police car might not be far behind:

[11] The 2022 Wellington protest was a three-week long occupation of Parliament grounds, from early February to early March. This was a protest organised in response to the ongoing Covid-19 related vaccine and lockdown mandates.

> Eighty percent of all callouts in South Auckland by the police in the evenings, for violence related offences, so if they were able to use drones to go out and see what's actually happening, just the appearance of a drone over your house, may make you stop doing what you're doing to the person you are harming. They could have almost a placebo effect. There's no police here yet, but they've sent the drone… A deterrent yeah, 'I better stop'. If someone's ram-raiding your shop and a drone shows up. They know they've got the pictures or yeah. Mind you, it acts so quick they wouldn't have the chance to get a drone there anyway. – Frank

Jacob and Cole discussed the ways that C.C.T.V. has been used to tackle crime, which could be used as a basis for how drones might be adopted by the police to increase safety and security. Jacob mentioned the experience of one of his community members and how the installation of C.C.T.V. in the street has dissuaded people from drinking in the street outside their home. Jacob suggested that potential offenders could be dissuaded from committing a crime if they know that they are being watched and surveyed. Although this may lead offenders to shift their offending to another location, at the very least the C.C.T.V. has prevented offending in that specific moment.

When discussing drones and C.C.T.V. footage, Gladys gave an example of how footage has helped her community in the past, noting that although footage may not prevent a specific crime, it can give a clearer picture of what happened, which in and of itself can make people feel more secure.

> We've got our foyer watched, and our front door… Before that we had no idea who did what and our letter boxes were broken into twice and the second time, we actually had footage. Although it wasn't enough for the police to use for positive identification, but at least we could see who it was and what they were doing, and how they went about it. And that gave us all a bit more of a sense of security, in a sense, because we knew what went on. – Gladys

Kowhai and Jacob discussed how drones could be used in certain crowd management situations to improve safety. Kowhai noted that there might have been some potential for drones to be used to increase safety such as with the 2023 tropical storms that caused major flooding. As an extension of his example with the Wellington protests, Jacob noted that, with that specific example, drones could also improve safety as they would be able to monitor the event from the air:

> Yes, in that kind of environment, in that particular context. Yes. I feel a lot safer knowing that there is something looking down to make sure people who attend, although it's their right to be there, but there are also other people who want to be a little bit safer than it's been in the past. – Jacob

Frank discussed how speed radar-equipped drones could aid the police in tackling specific forms of offending. Frank noted that a static speed camera only deters offending around its fixed position, while a drone equipped with speed radar could easily travel and cover the entire road which would allow it to more effectively deter speeding:

> I think that, yeah, anything that helps to lower the speed of the motor vehicle accident rate in NZ, it's fine. If that's another tool they can use to track people's speed. Because let's face it, if people know there's a speed camera coming up, they slow down and then they speed up again when they get past, and … the police have no way of knowing how fast they are still going. If there was a drone, they would be able to say, he's still going 140 km/h down the motorway there. I don't have a problem with that. – Frank

Practicalities of drone use

While participants identified a range of benefits arising from police use of drones, they also raised concerns about their use. These included concerns about the consequences that might ensue if police place too great a reliance on drones at the expense of other policing practices, drones becoming disruptive if they are too many of them, the potential for drones to become targets for criminal activities and hazards to public safety, and questions about drone visibility. A key message from participants was that drones should treated as another tool in the policing toolbox, to be deployed where it makes sense to do so, rather than as a technology that renders other tools and practices redundant:

> I don't think instead of, I think the appropriate response must be assessed for each individual case, so if they need a chopper because the person got away too far, or whatever, they have to bring it in… I mean, you can't have too many tools in your toolkit. – Gladys

Overreliance on drones

Participants warned against police placing too great a reliance on police drones. There were three key concerns highlighted regarding this issue, including that remote technology should not fully supplant person-to-person policing, that experience with other surveillance technologies shows that police cannot rely on drones as a silver bullet to address crime, and concerns that an overemphasis on drones might reduce funding for other policing resources.

Some participants expressed concerns about the remote nature of drones and how this might affect the relationship between police and their local communities. Both Jacob and Kowhai discussed that policing is an interpersonal undertaking and using drones could take away that human element that is vital in police-public interactions. Kowhai noted that using remote technologies more actively, especially drones, can feed into people's fears about robots and the loss of human touch. Police drones should be considered a supplement to regular police work, not as a replacement of staff, considering the impact that good face-to-face policing can have on dissuading offending:

> … if it's too much of it, okay. There will be an overreliance on the machine, then of course it will take away the personal impact and the personal element of policing that is important to people and society. Say for example if a drone is in my neighbourhood to patrol, and not a physical body, that can create some negativity in the community whereas, even if I'm about to commit a major crime, sometimes police arriving with the right attitude, not patronising, with the right attitude, they can actually talk people out of committing crime… Drones should be applied as an assistance in terms of an investigation that is going on… I think I would put a lot of emphasis on the assistance element... police, the personnel, should be first and foremost the primary, and secondary will be the other tools that they rely on. – Jacob

Cole and Frank were concerned about police drones replacing police cars or even officers on foot during emergency responses. Frank noted that this is a particular issue as police drones cannot directly apprehend offenders, so police will still need to be physically present in these cases. If drones replace police officers on patrol, so that there are fewer officers who are mobile and available to respond to incidents, this may introduce delays in officer response times.

> I don't want that the police are never nearby because we can just send a drone. Sometimes police need to be close by to intervene, that sort of thing, if they can. If you're taking more police off the street and putting more drones around, you can be getting police not getting there as quick as they would be if they were patrolling the areas anyway. – Cole

Frank and Jacob suggested that police drones are unlikely to be a silver bullet in preventing crime as experiences with C.C.T.V. and helicopters have shown, so police shouldn't place too great an expectation on drones to prevent crime. With helicopters in particular, Frank noted that, due to the limited number of police helicopters available in Auckland, they can only cover a limited number of suburbs at one time, usually only useful in responding to an incident after the fact:

> Look has it made any difference? They've been used for quite some time; I don't know that our crime rates dropped as the result of helicopters. They can only be in at a certain amount of times. What, we have two helicopters in Auckland? They can only be in a certain number of suburbs at a certain number of times … I think they are only good if there's a pursuit or they have to track someone, if there's already been a crime. – Frank

Similarly, Jacob and Frank noted that experience with C.C.T.V. suggests that police drones will not deter offending as people have gotten accustomed to countering detection surveillance by wearing hoodies and covering up their faces.

Percy raised a point about the funding of police drones. Her concern was that the focus on drones could lead to other areas of policing losing out on funding:

> How does that get funded? Does something else have to go to allow them to be funded? So, are they more important than other … areas of policing that might lose out to that? – Percy

Too many drones

A few participants were concerned about there being too many police drones in the air and how this may be disruptive. While there is only a small number of drones being used by police today, there is a possibility of there being too many drones in the future, which will be problematic especially if the number of police drones reaches over "200" for Auckland itself, as suggested by Jacob. Kowhai noted that having too many drones in the air could be intimidating for local communities:

> It's about the balance between using drones and not using drones. So, I'm not here to say 'yes put drones out here, everywhere'. Actually, I would feel very intimidated if there were drones flying around all the time. I don't think that's ok and I don't think they [police] should be entitled to take up all the airspace. So, everything is on balance, you know … Because obviously there are privacy issues to consider. – Kowhai

Jacob suggested that overpopulation of drones in the airways might endanger aircraft, especially considering the proximity of the international airport to many communities in Auckland. Likewise, Frank noted that drones could also be a danger for local wildlife such as birds:

> … we watched a show called The Jetsons and they had flying cars, that were like little drones. I don't know, it would have to get to, it could eventually get to a critical mass, but I think it would take a long time for that to happen… I don't know how you control… you would have to, I imagine your drone has a camera, so you can see where it's flying. But you'd have to be careful to avoid other drones and birds. But there is also a risk to wildlife, of drones flying around, to the birdlife I should say. – Frank

Although drones are significantly quieter than helicopters, Frank and Cole mentioned that drones are still noisy and can be a considerable disruption, especially in the context of there being too many drones. Frank noted a personal experience with the noise that drones make even when at a considerable distance from his home:

> I have a park [near my home]. It's quite a large park. And on the weekends, not every weekend but some weekends, enthusiasts do go down and fly drones. There's a [shop nearby] that sells them, and I think they take people down there to give them demonstrations how to fly them and because they are incredibly noisy, I hear them from, I'm about a hundred metres from the park… The noise is quite intrusive. It's 2022, and you'd think they'd get to a stage where they can get to a drone that doesn't make a noise. – Frank

Cole noted that if drones become a regular feature, then this will be quite annoying to people due to the sound of them "zipping" around:

> … if you see drones all the time… it's going to be annoying in a way, with the sound of it. Kind of use it when you need it. If it's needed, use it. But if it's sort of just patrolling, maybe on a random basis, but not all the time because it could get annoying just having these things zipping around all the time. – Cole

Jacob discussed how the community may become disgruntled if there are too many drones in the air. It may lead to drones becoming targets, which is discussed in the following sub-theme.

> But to have it in the morning, you wake up and the first thing you see when you come out to breathe some fresh air and enjoy the sunrise, is you see drones flying around with no purpose whatsoever, then you understand we're being under surveillance again by the police. And that's when some of this rebel attitude comes up and say, okay, you want to see what I can do? Here's what I can do: [Gestures throwing an object]. – Jacob

Targets and hazards

Participants were concerned that there is the potential for police drones to become targets for offenders or even turn into a public safety hazard if there is an uncontrolled landing.

Jacob, Gladys, Cole and Frank voiced their concerns regarding the possibility of drones becoming targets and getting shot down. Jacob noted that drones are more exposed to getting shot down than helicopters, as they have to fly lower, which would enable them to become vulnerable targets. Jacob pointed out that drones could become targets simply due to their affiliation with the police, with some community members always looking at opportunities to damage police property. Some individuals in the community, including young people, could try shooting down drones for fun or notoriety, creating some sort of game out of shooting down drones:

> But it can also cause some fun activity for some young people, and that may create an environment where some young people, well some older people, not just young people. But you don't want to start up something that will become an obstacle for the safety of the community, so much so that some people will think it will be a nice game to shoot down as many drones as we possibly can. It can be a game, so instead of duck shooting, it will be a drone shooting exercise. And believe you me, judging by the way our young people, and some of the older people, in our community, they love doing things that will make them the spectacle of news come six pm. Okay, "five police drones have been shot down by unknown objects", so, it creates an extra bit of cause for fun, for some people. – Jacob

People under surveillance, including gangs, might look into ways of taking down drones. Frank was concerned that if the police started looking for the wrong people, then those same people might start using firearms in order to take drones down. Cole noted that some gangs could look into sophisticated ways to "block signals" in order to take police drones down. Gladys further noted that organised criminal groups might already be looking into ways to counter police drones by shooting them down:

> I think they can become targets for you know, people that are up to no good are gonna recognise the police drone and try to shoot it. I think they will pose some challenges for the criminals. I think they will develop techniques of blasting them… it will be a challenge for gang members for example, who obviously their gang premises are quite hot-spots, and they will be discussing as we speak, how they are going to tackle these drones and blow them up. – Gladys

Cole and Tony discussed other ways that drones might become safety hazards. Cole talked about the possibility of drones crashing and injuring someone, for example, as a result of a

drone operator losing control of the aircraft. Tony noted an additional concern that footage from a downed drone may not be secure:

> Just I guess the people that are actually using the drones. You know, obviously they'd have to be trained, but again, if a drone was to crash, what material is actually on that drone? Would people be able to use that? Because I'm pretty sure they record and things like that too, so if a drone crashed, people are on there that video footage is out there. – Tony

Visibility of drones

While drones can rely on their inconspicuousness to conduct surveillance covertly, participants discussed how there are several issues that arise from a broader discussion on the visibility and marking of police drones in communities.

Most participants agreed that police drones should be clearly distinguishable from other drone users. There were several suggestions put forward by Tony, Cole and Jacob, which included using a specific colour scheme, installing emergency lights or a siren, in much the same way that a police car or any other emergency vehicle is clearly and visibly marked out. This could potentially alleviate any possible confusion if a drone suddenly shows up:

> If all of a sudden, we see a drone whip by, we can be calling the police, 'what's this?' But if you know what a police drone [is] meant to look like to begin with, you don't want to confuse a public drone to a police drone. You want your drone to be recognizable as a police car or a police drone. So that people don't misuse it. – Cole

Gladys noted that someone might mistake a police drone for a neighbour potentially being "nosey". Jacob noted that drones are easily accessible to the wider public and a concern within his community is that it is not clear which drones belong to the police.

> [Community member] said that drones should never be used. He disagrees with the idea with drones being used by the police. Some of them share the view, that the media uses drones, family use drones, police use their drones, and how can you tell which is which? When they are all up in the sky. – Jacob

Kowhai discussed that if drones are not visible then they cannot achieve any meaningful impact on making the roads safer such as by reducing speeding. She compared potentially using drones on the highways with traffic officers that patrolled the roads over two decades ago[12]. She suggested that on-road visibility is important as it can encourage people to slow down:

> So, we had traffic officers in cars and on motorbikes and that sort of thing. And their felt presence, I think, that in itself helped provide safety on our roads. The point I'm trying to make here about drones and cameras and things like that, they're not always visible to people and that lack of visibility I think needs to be considered. My point about highway patrol, that visibility is actually the thing that keeps people safe, I think, I can't back this up with anything but my own personal experience. You see traffic officers on the road, you see police patrolling, you slow down. So just in terms of

[12] See Ministry of Transport's Traffic Safety Service.

> human behaviour and our perceptions. Our perceptions of things are really, really, critical. – Kowhai

Privacy

> I mean [proactive surveillance] is very *Nineteen Eighty-Four*, big brother … certainly, working for an organisation like this, privacy is front of mind most of the time. – Frank

Privacy was a core issue that was spontaneously mentioned by all participants. While participants personally held differing views as to whether privacy is a concern for them in relation to police use of drones, they all still considered it a key issue, especially for their communities, that needs to be addressed. Discussions included how surveillance can impact privacy, the issue of footage data protection and how proactive, rather than reactive, surveillance has the potential to exacerbate privacy issues.

Surveillance and privacy

Personal privacy was front of mind for many participants. Tony, Percy and Kowhai all noted that they do not want to be watched or observed by police drones if they are not doing anything illegal or wrong. Percy also noted specifically her concerns about drones recording her private space without her knowing or being aware in the first place:

> I suppose ultimately, because I'm a good person and good citizen and there should be no drone looking through my window because I'm not a criminal. I want to know that there won't be one hovering down, peering at me. Despite accident, while they're trying to find the right house and that feels like a real invasion of privacy because they can get so close without you even knowing… But, yeah, it's the recording of our home space and our family and our people you care about, being recorded without their knowledge by anybody, whether it be private or the [police] services. – Percy

Frank and Cole initially commented that the issues of privacy could be made worse if surveillance drones become a regular sight. Frank noted that having a large fleet of drones regularly flying over people's homes would result in more privacy breaches:

> [When asked about drones being used to patrol neighbourhoods] If we have a fleet of drones that are continually flying over and looking for criminals, then perhaps not. Because I think that would probably breach the Privacy Act of '93. I mean that is very *Nineteen Eighty-Four*, big brother. – Frank

Jacob discussed how the introduction of police drones can create a dangerous precedent and negatively impact privacy. He suggested that people are already segregating themselves behind fences and walls and this tendency may be exacerbated if people feel that their privacy is being violated by the introduction of police drones:

> It's this whole idea of separating ourselves from other people, and how high are we going to have our fences in the future? So, my fear is that these drones will produce a sentiment within the community to keep on segregating ourselves from other people. Are we going to have a fence above? More like another roof above our roof? So that no surveillance can penetrate the privacy of my home. I don't know, but we now live in a community of fences… that element of community living is now taken away. Imagine if there are more drones. – Jacob

The geographic location of participants and their communities, including the location of where drone surveillance might be carried out, had an impact on their perception and value of privacy. Drone use in perceived "high crime areas" or public streets was not as concerning to Gladys, who resides in a highly urbanised area. Tony, who lives in a rural area, noted that he lives a "pretty quiet life these days and I wouldn't want to have drones flying over me and things like that". Tony further noted that he and his community in particular place a high value on privacy because they live in a rural area and prefer to maintain their free life:

> I've had a bit of a conversation with some people and they're just very sceptical and the idea of what it's gonna look like. Again, it's just a privacy thing. A lot of my friends we live in a really rural area, and we'd want to keep it that way, instead of having drones flying around and things like that. You know, we want to have our privacy and live our lives… the privacy thing, and you're always like big brother, you always feel like you're being watched. Hard to live a free life when you're always being watched. – Tony

In contrast, Cole and Gladys mentioned that although some members of their communities are concerned about the impact on privacy of police drones and other methods of surveillance, including C.C.T.V., they do not personally have any major privacy concerns with being watched. Cole suggested that people should not be concerned about drones or being subjected to surveillance if they are not doing anything illegal:

> I have had over the years like people wanting C.C.T.V. cameras in their buildings and then some of the people in the buildings saying, "I don't want that, it's going to encroach on my privacy". But if you're not really doing anything wrong, why are you worried about it? But there are people out there that do have that way of thinking, encroaching on my privacy. – Cole

Gladys pointed out that many people who are opposed to surveillance technologies, such as C.C.T.V., have an unrealistic perception of privacy and safety. If they or someone in their family was victimised, then they would become more supportive of using surveillance technologies to tackle crime:

> … I've come to the point of realising that people do confuse what's reality with what an ideal philosophical stance is... so even people that don't like C.C.T.V., if it was their daughter getting murdered, they would love it. So, it's that difference between reality and people's concerns about privacy. – Gladys

Percy and Tony mentioned why they are not as worried about C.C.T.V. as they are about drones. C.C.T.V., unlike drones, are fixed and much easier to spot. Drones on the other hand are more mobile and discreet, so they can easily circumvent any physical barriers to watch people in their homes:

> I'm hugely supportive of [C.C.T.V.], they're not facing my house, there's no risk of them peering in my window. There's no risk of them hovering above me when I'm out in my garden. I know where they are, they're fixed, so doesn't concern me on that level, like the drone… you don't know it's there. Different kettle of fish. – Percy

Data protection

Percy, Gladys and Jacob mentioned their concerns about what happens to drone footage after it is captured. Drones have the possibility of capturing highly sensitive footage of personal spaces and homes. Participants were concerned about the storage of this footage and wondered if it would be deleted, especially if it was not linked to any crime. Percy questioned whether one could trust that the footage would be appropriately disposed of:

> … the big brother watching. It's the not knowing and not having control over your own private space… if the footage is not linked to a crime and it's not helpful in any way, identify any sort of criminal, it should be deleted. But there's bad people out there, will it be deleted? There's creepy people out there. So, you kind of putting your faith in them that they say it will be deleted. Will it be deleted? You never know. – Percy

Where drone footage is retained, its proper management was considered an important concern. For example, Gladys mentioned a concern about footage potentially being leaked to news organisations and websites, outside of the police:

> I guess my only concern is that the footage remains classified. So, you know, they are not allowed to sell footage to *The Herald*, or to go on the *Stuff* website or something. You know what I mean? So yes, there would have to be … what do you call it some sort of laws around that the usage … so that you can't just sell the footage to the local rag. I think that's important that the footage is protected, pretty much. Like confidentiality. – Gladys

Jacob discussed how there may be an issue of foreign entities accessing footage, particularly due to New Zealand's relationship with other countries and their intelligence services under the Five-Eyes agreement:

> So, in the case of New Zealand, and this might go towards the privacy of information. What's the guarantee that what is collected by the drone, is not connected to some other system within New Zealand, within police… we now have a Five-Eyes agreement. What's the guarantee that information, that data is not downloaded by America as well, by Australia, by our other partners. – Jacob

Jacob suggested that many issues of data protection could be alleviated and resolved if drones are manufactured domestically rather than imported from overseas, where foreign intelligence services could have access. Drones and data could be designed to be destroyed after time has elapsed in order to ensure footage is appropriately disposed of:

> Make our own drones here in New Zealand. Make sure that the machines are in no way connected to any other system, external to the machine. And that the machine is a standalone tool…. maybe we can invest an initial amount of money into that. There's a whole lot of innovative kind of people here in New Zealand that can make those kind of

> things, specifically for that purpose, lifetime of maybe five years for a drone, gets destroyed with its data set and everything else. Then we are safe. – Jacob

Reactive vs proactive use of police drones

All participants were asked their views on drone uses for reactive and proactive surveillance[13], where reactive surveillance is more targeted, as a response to an incident, and proactive surveillance involves actively searching for and locating crime. In general, the majority of participants were more in favour of reactive surveillance over proactive. Proactive surveillance was often noted by participants to potentially exacerbate any existing concerns about privacy breaches. For example, Frank was concerned that proactive surveillance, although it can be beneficial, could become a "slippery slope" as it may eventually lead to the police overstepping their jurisdiction:

> I can see a lot of applications where proactive may be useful, but does become a slippery slope, and that's the quandary, the dilemma. How much power do you give to one arm of government, in terms of powers, so that it becomes a slippery slope where they say, 'ok now we will just go and spy on whoever we want to spy on'. – Frank

Jacob noted that, rather than police drones being used to constantly fly around in the skies, he prefers that drones are used in a more reactive or targeted way, to be called in when there is a specific incident that needs to be attended to:

> When an accident happens, drones, especially if the police cannot access the site of the accident, or people suspected of committing a crime, if there is that suspicion then of course, it's viable to bring it in, one hour, half an hour, work is done. Rather than having a 24-hour surveillance … where drones take turns to monitor our skies… the police just need to be responsible or use them responsibly, and people will understand if it's directly related or connected to an incident, that can be accepted by the community. But to have something up in the air consistently, for no reason but to provide surveillance, I think it's totally wrong. – Jacob

Cole noted that, while he prefers reactive use of drones, sending drones when needed, he is not outright against proactive surveillance though it should not become a regular thing to the point that it becomes annoying. Similarly, although Tony preferred the police to use drones more reactively as a response to a specific incident, he conceded that he would support proactive surveillance if it targeted groups whose activities had a negative impact on communities:

> I'm not a big fan of gangs and I think they're a hugely, have big impacts on our communities. So, if [police] wanted to surveillance those sort of things, I mean, our

[13] In most cases community leaders mentioned reactive and proactive use of drones before a definition was given to them in the interview, however this was briefly explained in the Fact Sheet. Community leaders understood reactive use to mean situations where a drone is used as a response to an incident or call, while proactive requires the police to actively search and use their discretion to prevent or target crime (Heen et al., 2017). The latter also included police drones being used to proactively and routinely patrol neighbourhoods and conduct more active forms of surveillance that reactive policing does not allow.

> young people need to grow up in better communities. I just say, go for it with them. As bad as it sounds. – Tony

Gladys also voiced her support for police using drones in both proactive and reactive settings. Her primary concern was protecting people against harm, so, for her, safety trumped any concerns that proactive surveillance might impinge on privacy:

> But I realise the common response, red flags, from people that I've spoken to. 'Oh, we're going to be surveyed'. But I'm bit conservative, I would rather feel safer myself, than worry about you know, somebody is gonna get the footage... that's like two polar opposites, privacy and safety. But you know, that's kind of where both arguments sit for me. I'd rather be safe, and I'd rather people around me were safe... prevention of innocent people getting injured has to be top of the list. You know, it's like we protected people against Covid, so why can't we protect people against, you know, people damaging other people and their property. – Gladys

Percy raised a specific point that reactive surveillance could potentially overlap with proactive surveillance. For example, in responding (reacting) to a tip-off about criminal activity, police may have to resort to proactive surveillance in order to search for and pinpoint the exact location:

> I think, I think both. Because then proactively, again, that drug example, that's constantly proactive. You know, they've had a tip-off that a house on this street, but they don't know which one might be involved with a drug, so they want to do it quietly, because they don't know what house they're going to. They don't know what's in the backyards of three tiny houses, that they know about. So, let's try to find out, you know. So, I think it's both, I don't think it's one or the other. I think it would absolutely serve a purpose. – Percy

Frank, Tony, Cole and Percy also discussed how the location of the surveillance impacts their support of it, noting drones being used in public areas are not too concerning. Similarly, participants directly noted that they already accept surveillance cameras being in public spaces such as streets and business areas. However, proactive surveillance over one's private home and space was another matter altogether. Frank noted that if a drone is used to patrol a public space, similar to what a police car or helicopter does, then this is unlikely to elicit a negative response and may also bypass any requirement for a search warrant to be issued. Cole stated that people do not want police drones flying over their backyard unless police have a genuine reason to be there, such as actively pursuing a fleeing offender:

> … I guess a majority of people would not like [police drones] flying around their backyard. I mean, if there was a criminal jumping fences and going around the back, then yeah you have a drone and that's a good thing… but just to be flying in your backyard, just in case there might be someone there. Might be a different sort of view. – Cole

Police drone mismanagement

> It can also be detrimental both to the security of the people being policed, and to the police, if it is used in an abused manner. What I mean by that is when you try to collect information that is over and beyond the main objective of the operation. – Jacob

The final key concern that was raised by participants was the potential for police drones to be mismanaged and used inappropriately. The issues identified included the misuse of surveillance, mistrust of the police and the potential for there to be oversurveillance. Some participants also mentioned how both Māori and Pacific communities have had negative past experiences with the police and surveillance, and how the views of participants and the communities carries over to their concerns about police drones.

Misuse of surveillance

A key talking point for participants was how there is a major risk of police drones being misused which may include footage being used inappropriately or falling into the wrong hands. Routine surveillance in particular was perceived by participants to create more opportunities for drones to be misused as it places less restrictions on how drones can be used. There are two possible sources of misuse: Firstly, that there is the potential for the police as an organisation to use drones for surveillance in a way that they are not meant to be used, such as by abusing their powers or overstepping their jurisdiction; and secondly, for individuals within the organisation to abuse and take advantage of their position.

Percy discussed that, while helicopters can capture surveillance footage from the air, she was less concerned about them than she was with drones. She argued that drones can capture much more sensitive footage, as they can get much closer to people's private homes and living spaces. Because of this, the repercussions are much more serious if drone footage falls into the wrong hands and is abused.

> Drones are next level because it's your house and your private dwelling… much greater than current policing. Because a helicopter can't land on my back garden or spy on me. Or if they are hovering above my house, I know about it… And remember people have bathrooms, bedrooms, getting changed. Bathing their kids. It's private space, where you do not ever, ever, ever, expect anyone else to be able to see that, but drones change that. That's where the creepiness comes in and that stuff getting in the wrong hands is dangerous. – Percy

Jacob and Kowhai mentioned their concerns about the police simply disguising their surveillance or the nature of it in order to bypass any rules and regulations. For example, Kowhai wondered whether the police could simply rebrand surveillance as some sort of "safety exercise":

> … if we're talking about drones for surveillance purposes, what are the limits and restrictions around that, and will there be any? That's a really, really, important consideration, I'm not just talking about the dollars and cents of it all, I'm talking about human costs. Does this give the police the authority to, you know exploit technology or drones, under the guise of it being drone use as a safety exercise rather than a surveillance exercise? – Kowhai

Jacob discussed how he is concerned about the police being able to gather too much additional footage and information on the periphery of their main target:

> … key question for me is an ethical one. Whether police will then be truthful in terms of eliminating anything else everything else that is not part of the objective of looking for that one person. What if the drones go up and see something that is a bit suspicious, will they then direct their focus on that and become like almost like a spy network for the police? And, to me that's unethical. – Jacob

Percy made a similar point, that surveillance footage could offer opportunities for individuals to abuse their positions of authority and power to get their hands on footage: "… there's bad people out there and some of these people, they deliberately target those types of roles, you know, to get their hands on material that they can use for the wrong reasons."

These concerns become more apparent when discussing the use of police drones in proactive or routine surveillance. While Frank could identify many potential benefits to police drones being used proactively, he had to balance this out with his concern regarding the possible implications of this more freed use of surveillance drones. He previously noted that giving the police too much power and leeway to conduct surveillance is a slippery slope that could lead to the police taking advantage of their position in order to spy on whoever they want. As a result, Frank mentioned that there would have to be regulations in place in order to prevent this misuse of drones. "… it could lead to police over-stepping their jurisdiction. There would have to be very strict regulations put in place for the use of drones, so they weren't just used by the wrong officers, for the wrong purposes."

For Kowhai and Jacob, their concerns for the misuse of police drones are grounded in the past experiences of their communities with local authorities, including the police. Their concern is that the prevalence of surveillance drones will only perpetuate existing problems. Kowhai in particular mentioned that there needs to be extra care when addressing Māori especially when considering their past experiences with the abuses of power by the police:

> ... my point here is you're already dealing with a hypersensitive population group because of the experiences of the past and present policing behaviours that many Māori continue to say needs changing. So, the abuse of power needs to be thought through really carefully if we are to introduce the use of drones for surveillance purposes... the potential for an existing problem made worse… And I do think we need to look at studies around the misuse of power and control, and these studies have already happened, numerous studies about the misuse of power and control. All of that needs to be taken into account when we are making decisions around drone use. – Kowhai

Mistrust

For some participants their concerns about potential misuse and mismanagement of police drones stem from past experiences with those in positions of authority and power, including the government and police. Participants were concerned about trusting the police in operating drones and conducting surveillance. Tony in particular was very sceptical and distrustful of the government. His concern was that the police may promise to do one thing with surveillance, but in reality, be doing something else:

> I'm a bit quite sceptical, [police] might say they might do A over here and this is how it's gonna look and then they're doing B and they're actually surveying everyone. So that's why it's sort of like, it's a trust issue I suppose with that side of thing. Maybe just with the police in general. Trusting that they're doing what they are saying. I'm not a big fan of the government. They say things and then they do something different. That's probably where my fear of that comes from. – Tony

While Kowhai previously noted that Māori have had experience of police misusing their power, she also expanded on this by discussing the mistrust that has been caused by this. She noted that the relationship with the police would need to be improved in order to enable Māori to finally trust the police:

> Māori history with the police and our relationship with the police, yeah, needs to improve. So, this is a matter of trust. We need to be able to trust in our police force. I don't think you're going to find too many Māori that say, 'Oh yeah, I trust our police implicitly.' You know that's not going to happen, that would be a really strange situation if that was to occur. – Kowhai

Kowhai added to this by underlining that the issue of trust for Māori is not with the drone itself as much as it with the police who would be operating said drone:

> That's the critical thing here because we haven't been able to trust our police force. So, the assumption is that we can, but that has not been our Māori lived experience… I think about the people that are operating the drones. It's not the drone, *per se*, it's whether or not we can trust the people that are in charge of them, that are operating them. – Kowhai

Frank mentioned that low acceptance within his community regarding police drones stems from historical distrust and dislike of the police. The community would simply focus on the negative side and aspect of police drones and reject any benefits that come from them. The introduction of drones would just perpetuate the existing dislike of the police:

> I can imagine what their thoughts and perceptions would be. I know what their thoughts and perceptions are of the police now and the police helicopter now. So, if you were to introduce drones into that mix then that would just strengthen their resolve and their belief systems and I don't say this disrespectfully, I think they come from a more disempowered point of view and less informed point of view. So, they would just see the police being pigs, and the police being intrusive and the police just out to get them… They would take any opportunity, a lot of the people we deal with, to denigrate the police force. – Frank

Jacob discussed the views of some of the young people in his community. He argued that the young people in his community have little trust for the police and would perceive drones as just another tool or method for police to suppress them:

> Right now, if we go by the current perception of the police… young people and their perception of the police, they got no trust of the police whatsoever, so having drones will just be giving them an extra tool to keep on suppressing our young people. I'm talking about our young people, and to them, it would just be empowering the police to keep on disempowering or taking away, the power from our young people. – Jacob

Jacob was also concerned that the use of drones for surveillance purposes might reinforce the existing issue of narking. His concern is that the use of drones for surveillance and the need for information gathering could inadvertently spill over to local communities and perpetuate narking on neighbours for information gathering. The police might end up encouraging this sort of behaviour, which is not an ethical way of assisting the police. This will simply drive communities apart and make the issue of lack of trust even worse:

> We've got enough narking in our community right now and if that happens, and it's connected to police work and surveillance, I think our community is going to continue to be dismantled where we won't have any trust for each other anymore. It's bad enough that the community as a community doesn't have that much of a trust for the police, what if the community within being infiltrated by the police and these gangs, for the usage of these machines, will become disentangled from each other. We won't be a community anymore… the community not really doing an ethical thing in terms of assisting but the police, but narking on the community, is something that doesn't sit well with me. And will the police encourage that? – Jacob

Oversurveillance

Kowhai and Jacob mentioned that there has been historical oversurveillance of specific communities, specifically Pacific and Māori communities. They discussed how this is linked to a biased over-targeting of Māori and Pacific through the criminal justice system and by policing. Kowhai noted that the concern for Māori is that drone use will perpetuate this unnecessary oversurveillance and stereotyping further:

> Māori being targets of oversurveillance and police discrimination, issues of racism and that sort of behaviour. So, Māori already have a concern about Māori targeting and that's not even talking about the use of drones. That's the history of this country where Māori have been targeted... we know where we're rated as Māori in the crime stats in Aotearoa New Zealand. That needs to shift and change so it reduces rather than increases and my concern about drone use is that it will only contribute to the unnecessary oversurveillance of Māori. – Kowhai

Jacob expanded on this concern by discussing how oversurveillance contributes to an inaccurate and inflated perception of crime rates in some areas, even if there is an equal amount or more crime in other areas that are not dominated by Māori or Pacific people:

> I think it's all based on the idea that, say for example, South Auckland, oversurveillance in there, no question. Why? Because the philosophy that this is the hub of criminal activity, so therefore let's keep on monitoring this particular area… If drones will come in, in the wake of all these monitoring devices, and of course there will be an oversurveillance in South Auckland. There was a time when more police were added to South Auckland, Counties Manukau. Key question that particular time was why. The answer was, there's more crimes in there. When in actual fact, in that particular time, there was more crime in somewhere else, Canterbury. More expensive crime somewhere else, CBD. But why Counties Manukau? – Jacob

The way forward with communities

> Police going straight to the community, connecting with the community in an educational manner, and also advocating for … a partnership between the community and the police, rather than coming in heavy handed on the community, 'Okay, your community is the problematic community in Auckland, and we are here to fix you up'. That kind of attitude has never worked, will never work. – Jacob

Participants discussed the possible ways that police could approach local communities in potentially alleviating community concerns for police drones. Engagement with communities through consultation and dialogue was considered the main next step that police should be examining. Discussions also included how this is an important time for dialogue, and the importance of partnership, informing communities, and refining of existing rules. Establishing partnerships with communities could help build support for police drone use and ensure that its use is appropriate and accepted.

At the time of the interviewing, none of the participants mentioned any consultation taking place within their respective communities regarding the use of drones for policing.

Important time for dialogue

Participants all agreed that police drones are coming and are an inevitability. Kowhai mentioned that it makes sense that the police would want to be "keeping up to speed and up to date with the advancements in technology". Frank noted in particular that drones have the possibility of improving the capabilities of police and resolving existing shortcomings in responses and current approaches to policing:

> Look, we're moving into the 21st century more and more. We're gonna see we have to change with the times. There will always be a need for frontline policing, but we all know that there is not the money to keep employing more and more police. And we're all shocked when we saw films like Robo Cop back in the 90s, but I mean that is where we have to head. Policing has to take a different direction and people have to be aware that is the most sensible thing to do and try and work with it the best way that possibly can. – Frank

Frank and Tony agreed that this is a critical moment in time for involving local communities in dialogue with the police and any other relevant authorities to discuss the advantages and disadvantages of police drone use. Frank noted that these discussions should be done now, before it is too late to turn back. Frank and Tony stated that is important for local communities to become aware of and informed about the benefits and shortcomings of drones. Such discussions could lay the groundwork for further engagement and consultation. Tony noted that it is important to have conversations and make it clear to people that drones are being used and also outline how:

> … it's already been happening, and you're just sort of calling it as you're sort of seeing it. They're being used but communities aren't being informed of what they're being used for. And again, it could be really beneficial for so many things but it's about having that open conversation around, 'this is what we're doing, this is how we're doing it', and just making people aware. – Tony

Jacob suggested that there may be difficulties initially in convincing communities about the benefits and utility of police drones, considering that this is still a relatively new technology. He suggested that it will take time for people to come to accept drones since many people are still in the mindset that drones are a toy, rather than seeing them as a useful tool for policing:

> Anything that's novel, will require a bit of time to have it be accepted by people, same as us. When the new phones came in, although there was a buzz about … these smartphones, a whole lot of older people were still hanging onto … the landline. So, they had the smartphones, but they said, 'Nah, I can't part with my landline'. Same with these drones, people still don't fully accept it can be used for police work as well. They still think in terms of, 'Ah, it's just another toy.' – Jacob

Jacob, Tony and Frank also noted that it is important for police to be demonstrating that they are using drones correctly. Frank noted that police have a special degree of responsibility to demonstrate that they are using their resources effectively and for the right purpose:

> I think it's even more important with the police, to be honest, because the police are a legislative body, and they have a greater degree of responsibility and they need to be showing that they are using the tools they have efficiently and effectively, and that they are using them for the right purpose. – Frank

Importance of partnership

Participants all agreed that consultation is a very necessary first step in engaging with and involving communities. Jacob stated that consultation is important in establishing a partnership with communities. Kowhai mentioned that there are many different considerations and concerns that communities may have, and these are not being considered or voiced if there is no discussion or consultation with communities:

> It's not just the one size fits all. We need to really consider, you know, how big these things are, where they are flying, proximity to school, places of prayer. And this is the whole thing about intrusion. Basic human rights around privacy, all those things need to

> be considered and if you're not consulting with communities then you're not considering those things. – Kowhai

Frank and Gladys both noted that people dislike not having their voices heard, with consultation being the best course of action in building support or acceptance of the public towards the police's use of drones. Frank stated that not having consultation is akin to "running headlong into a disaster". Jacob stated that communities will be more likely to support the use of drones by the police if they are in a good working partnership with the police:

> Consultation is the most ethical thing that needs to be done, no questions asked… consultation will develop the partnership a lot better. So, if the police force is working in partnership with the community, of course, the community will be willing to come in, or come to the aid of the police, whenever it's needed, or required. … people are asking, 'When will they ever come in to sit down and have a community hui, in a marae, a community hall, and say, 'This is us, if you need us, there's what we do, what we don't do, please support us'.' That way people are willing to support the police. – Jacob

Kowhai suggested that the principles of the Treaty of Waitangi could also be used to guide community engagement and partnership:

> … we are unique here in Aotearoa New Zealand because we have something called Te Tiriti o Waitangi and that if we were working in partnership according to the principles that are espoused within the Treaty, you know, being more compliant with the Treaty as a way of guiding these processes and engagement, how partnership happens in our communities. – Kowhai

Percy, Frank and Kowhai also noted that consultation should be done on a wide basis, involving as many different communities as possible. Engaging with people from different backgrounds, be it socio-economic or cultural, will ensure that all the different voices can be heard and addressed:

> I think first and foremost there should be consultation with Tangata Whenua, so Māori. And then there should be consultation with the communities that it's going to affect … or where it's going to be used, be it rural, urban whatever. As wide a consultation as possible, cause that's the safest thing to do. Getting a wide consultation. – Frank

Kowhai and Frank also discussed leadership and who should be involved in representing local communities during discussions and consultations with police. Engaging with the right leaders and representatives is as important as engaging with communities in the first place. Consultation should be done with representatives who are influential within their communities:

> If you were able to speak to the elders … within the communities, I say communities because there's many communities out here that may help change perception… Consultation with the right people, with the influencers. There has to be consultation with the influencers. – Frank

Kowhai discussed how it is important for Māori to be able to choose who represents them, rather than having others choose representatives for them:

> I think also that Māori get to determine who represents them. They know the people who participate in their communities at the leadership level, Māori know that, and non-Māori may have their preferred Māori but that's not necessarily a person that the

> community wants. Having a combination of people with expertise, community credibility who can allay fears and increase trust. – Kowhai

Kowhai further elaborated on leadership by discussing that women should play a more active role in representing their communities. She suggests that women are often overlooked when it comes to decision-making and leadership even though they are doing the same leadership and community work:

> It's the balance for us you see, it's finding the balance… consider what leadership looks like, predominantly in Aotearoa New Zealand we've had a history of patriarchal male dominance, ok, and yet we know that there are a lot of Māori females, women, who actually are the ahi kā, who are the ones doing the leadership, birthing, mothering taking care of the home, working, advocating in their communities and there needs to be greater recognition of the importance of women today when it comes to decision making, it hasn't been afforded to us according to even our traditional system which broke down as a consequence of colonialism. – Kowhai

The nature of the consultation was also an important consideration. Tony suggested that it should not be a one-off singular event or meeting. Consultation should instead be an iterative process where the police constantly return to communities in order to keep them updated, including on how surveillance is progressing and if there are any issues that may need to be resolved:

> You don't just go in for one meeting, you're doing this surveillance and … you need to keep coming back to stay in relationship with people. So, we know if things are going as planned or there's any changes, or things need to change. Just so community is aware of what changes have been made, if they have. – Tony

Kowhai suggested that, while consultation is important, there is no guarantee that community concerns and fears will actually be addressed and allayed. Communities should instead be offered the opportunity to act as decision makers in guiding the use of police drones. Kowhai mentioned that this is particularly important for Māori so that they can address current issues and how drones might affect Māori:

> We're not there just to consult with people to enable decision makers to then impose, you know, rules and regulations on us. We need to be participating in the development and overseeing how these things happen. So, beyond consultation, we need to be at the table as decision makers… We need to be the decision makers. We already believe that happens, that is part of our history. We talk about colonisation and colonising practices. That's alive and well for us. Whether people believe that or not is a non-issue for us. We know what our personal experiences have been, and the statistics speak for themselves. So, we need to be the decision makers along with- part of that group of people who make those decisions about what happens to Māori. – Kowhai

Several participants mentioned that there are caveats to conducting consultation which should be considered. Cole suggested that, unlike professionals who know what they need to do, the average person on the street may not recognise how beneficial police drones are for society:

> Well, I mean, there should be consultation but then you also got to get professionals [who] know what they need to do, to get the job done. And sometimes your average

> person on the street might not recognize that. If it's a benefit to society, then sometimes you've got to be hard about it and then go ahead and do it. – Cole

Frank also suggested that the average person may not be interested in the specific discussions of how drones should be used. For some people it is a question of if there should even be a police force in the first place, rather than how resources should be managed:

> I don't think that the majority of people generally, worry about what, how resources are used within the police force. Or they're worried about that there is a police force. … I don't think the majority of people sit down and think, "What's the best use of resources for the police force? Is the best use of resources having drones?" They'd just say, "Should we have drones, shouldn't we have drones?" It wouldn't be a matter of resourcing, staffing, increasing capacity for policing. I don't think there would be anything that they would think about. – Frank

Informing communities

> Personal experience, if someone was to have something positive happen as a result of the use of a drone, that might change a perception. – Frank

A few participants discussed that informing communities about how and why drones are used should be part of the wider consultation process which should involve answering questions that communities have. Informing communities could help alleviate some of the concerns or even misunderstandings that communities may have towards drones. As Jacob pointed out, communities are more like to support drones if they can have their questions answered and are informed:

> If people are informed and more knowledge is given to them in terms of alleviating what I might call, the ignorance on their part, then of course people are going to come up with educated decisions and 'Oh ok, now I understand'. Why? Because of the information that was given to them, and if that information is being processed, analysed, by the people, by the community, further questions have been asked and answered, then of course, people will be willing to be onboard. But if all of a sudden, they see new things happening, too many questions have already been unanswered, more questions will come on, it's going to cause chaos and confusion within the community. – Jacob

Kowhai agreed that if communities are being informed within the overall decision-making processes, then this may help alleviate some of the concerns that communities may have towards police drones:

> I think [informing communities] might go some way to allaying some fears and concerns. Making informed decisions is important and knowledge concerning drone use is about managing both 'use' and 'misuse' educating people , removing the fear and increasing safety. – Kowhai

Informing communities could help clear any confusion or misunderstandings that communities have with regards to surveillance. Gladys noted that when people hear "surveillance" then they might assume the worst, so it is important for communities to develop an accurate understanding of what is involved:

> … at the moment I think that when you bring up the topic of drones for surveillance of any sort, people convolute that with an invasion of privacy, so I think that the consultation would help educate people into a sort of realistic understanding of how this would work. – Gladys

Tony mentioned that police should also make it clear to communities that drones will not be used in an abusive manner and demonstrate directly to communities how drones will be a benefit for them:

> … reinforcing that they're being used in the correct manner. And just educating communities around what they will be used for, where they'll be used and maybe even giving communities back some successful outcomes of what the drone's been able to do. Like feeding back to the community with things they've been able to achieve. Just showing evidence-based facts that … drones are beneficial in terms of … things like … crime not being committed and things like that. – Tony

Jacob suggested that the police themselves should be better informed not only on the use of drones and ensuring that its use is fair, but also on policing techniques and attitudes:

> I think resources should be spent somewhere else, in terms of one, education. Educating the police on a whole lot of social factors, and cultural factors as well. That money should be, will be better spent in terms of educating them in terms of how to work, to be more solution-based kind of policing. Rather than just to go out and to find criminals… and how much education will the police be required to do, in terms of them understanding the drones, the impact of the drones. And two, in terms of making the public aware of what they are doing. – Jacob

Gladys and Cole mentioned that police should not divulge too much information on drone operations and how they will be used or what limitations will be in place. Disclosing every single detail could defeat the purpose and function of drones in a surveillance setting and may even reveal to offenders how to avoid drones:

> There could be an outline, but … you don't want the criminals to know exactly what's going on. … You can sort of let the public know we're gonna be using drones in a not vague sort of way. But you don't necessarily need to pinpoint everything that gets done. Cause the wrong people can know what you're doing, what you're backing off on and what you're not, you know. It's like I said, the police know, they're professionals and they know what they need to know and what they should be holding off, so it doesn't impede on them doing their job. – Cole

Refining rules

The majority of participants considered that the rules covering the use of police drones could be improved and refined. Percy noted that while she was not aware of the existing rules covering drones use, due to not using or seeing many drones, she was concerned that existing legislation is not as refined as it could be:

> … I didn't know that legislation or rules were in place, but I wouldn't necessarily know that either. It's not surprising I didn't know that because, not really, I haven't seen many or I don't own one but, yeah, it's probably a really casually made bit of legislation, I would've thought. It probably really needs to be tightened up. – Percy

Frank suggested that the police could work directly with the government in order to ensure that the use of drones, especially for surveillance purposes, is in line with existing laws. It is particularly important for there to be good legislation that covers the use of drones in order to avoid potential problems and backlash:

> I think there would have to be legislation, policy, and procedure. At a government level, central government level, and police level at the departmental level. Well, I think that's something that would be covered off in legislation, in policy… Because a lot of people would jump up and down and say, they shouldn't have been using drones in the first place, and to cover the police there needs to be strong legislation as a foundation for them to use the resources that they have, if it's for drones or anything else. – Frank

Gladys and Frank suggested that existing legislation that covers the use of surveillance technologies such as C.C.T.V. and helicopters that are used by the police could be adapted and carried over to cover police drones as well. This could include how footage is managed and cover off any warrant requirements surrounding recordings. Frank suggested that it would be quite easy to review existing legislation covering the use of helicopters due to their similarity with drones:

> I would've thought that you could review existing policy for your helicopters because a helicopter is just a bigger drone after all. It's all set and done. You could revise existing legislation. – Frank

Tony, Cole and Kowhai discussed how there should be transparency and clarity about the rules governing the police's use of drones. Cole suggested that having clear rules about police drone use could clear up any potential confusion that the public might have should a police drone show up. Kowhai also noted that having strict guidelines for when police drones could be used could address any potential concerns about the potential mismanagement and misuse of drones by the police:

> … there are a lot of grey areas, and we need to be mindful of what they are. Name them, identify them and make sure that we put in the correct proactive measures. Proactive for the people in the community as I've said, there's been a lot of studies about the misuse of power and control, especially in military forces, policing, all those sorts of things need to be considered. So, I don't think you should just be able to put up a drone in the air, I'd like to think there are some protocols in place for the use of proactive, reactive, one way or the other, yeah. – Kowhai

Police will also need good policy to cover off surveillance and how they handle the recording and storage of footage. Tony stated that if any possible complaints arise regarding police drones, then police would need to fall back on those policies:

> My sort of views are how are the protocol's … followed. I believe if drones need to be used, there needs to be the process, like you know, search warrants. Just the procedures need to be followed…. you'd have to have policy and procedures cause … if there was a complaint, you'd need to be able to access that footage, or just working in this sort of sector you need a good backbone to be able to cover your arse. – Tony

While Jacob agreed that a refinement of laws surrounding drone use could be done, he also urged caution about adding to an already extensive amount of legislation:

> But we need to be careful again, with coming up with another law, say for example, the police minister can easily work with his team and say, "Okay … we'll put in another legislation, to legalize what you guys are trying to do." That will be another law, on top of too many laws policing our society. Taking away the element of ownership within our society. – Jacob

Private users

> … drones are pretty amazing, you know what I mean, you can capture anything you like, high resolution as well… yeah, it's a funny one with drones. I think there's a lot of really, really good, but there's potential for a lot of things to not go so well. Just with people mishandling them. – Tony

While the focus of the interviews was on police drones, there were several significant discussions that emerged regarding private users. Participants often shared many similar concerns regarding private drones, as they did with police ones. There were suggestions that there needs to be good clear rules that cover private use in order to protect personal privacy, potentially introduce licensing requirements and concerns about drones being used for criminal and nefarious purposes.

Cole, Percy and Gladys discussed the specifics of their concerns about private drones with regards to privacy. Cole noted that police have added degree of responsibility with drones to use them correctly since they do not want to lose access to them, "The police aren't going to be wanting to be caught looking at people's windows if they don't want to lose their right. While a random guy might put it on the internet." Gladys mentioned that she was more concerned about private drones breaching privacy because police drones are bound by legal protections and are a more responsible use of this technology:

> … I'm not a fan of private use drones in a built-up area, because then that is impinging on someone else's privacy. I just think that private drones are an impingement of privacy, whereas the police drones are a responsible use of a tool for protecting the safety of people. That's my stand on it. I think a private drone is an infringement on you know, whatever it is filming. The police's footage is bound by legal protections so, no, private drones shouldn't be allowed. – Gladys

Percy's concerns with private drones varied, depending on the location of the drone and its perceived intention. While a private drone on a beach being used for fishing is a clearly honest way of using technology, a drone showing up in a residential area would be treated by her with suspicion:

> So, couple of times I've seen them on the beach, at the beach, like they took a fishing line out and I thought, cool, fantastic, what a great way to use technology and a drone… There's no fear there, quite perfect, very honest way of using technology. But if I saw it up in the air in a suburban area, I'm now thinking… I would think that's concerning. – Percy

Kowhai and Percy talked about the importance of having rules surrounding private. Kowhai noted that while she is fine with private use of drones, she notes that there should be clear guidelines about private use in order to protect people's privacy:

> I think the private use of drones is fine, however it is like most things there needs to be clear guidelines about the use of drones. Personal privacy is important to people, we need to protect people's privacy, be vigilant about where and how drones are used for filming purposes. Drone conduct and guidelines are important. – Kowhai

Percy noted that some members of her community were concerned about private drones flying above their homes without having any idea of who the operators were. They were concerned that rules were not being followed:

> And yeah, I guess there needs to be some sort of legislation that you know, you'd like to think people are respective of others' space, but I'm sure it happens all the time. I think I've heard that definitely people saying that a [private] drone flew over and yeah, I mean, should they be allowed to do that? I don't think so. Just the same way, and they're certainly not necessarily upstanding citizens, who the hell are they? It could just be some dodgy guy down the road, or woman, whatever, dodgy person, or kid. I care less about kids using them. What are they gonna do with it? – Percy

Gladys and Tony talked about the introduction of licensing requirements for private drone use. Tony suggested that based on the size of the drone, for safety purposes, there should be a requirement to have some sort of licensing, including training associated with its use:

> I think to a certain extent, you need to have a licence with them depending on the size. Just because yeah, a big one is safety. Some of them can get, they're massive and so, you know, you shouldn't just be able to go to a shop buy one. Small ones, you know, they're sweet, but depending on the size of a drone you should maybe have a licence… People need to be trained how to use drones correctly because you know, some of them are big, some of them crash. – Tony

Gladys suggested that the private use of drones should only be allowed if someone has a licence and there is a genuine purpose for its flight, such as for filming a sports game or a movie:

> I think that private drones should not be allowed unless you've got a licence and you want to film a sports game or a racing car event, or you're making a movie and want to use a drone to film, take the footage. There's places for it and you can have a licence for it. Definitely, it should be licensed, all other drone usage. – Gladys

Jacob noted how an experience with private drones had shaped his family's views on police drones. Jacob noted how a neighbour's drone looking over their fence had bolstered his family's rejection of use of drones, both private and police:

> The next-door neighbour… were flying a drone and was just above their house…. 'You know dad, I don't think this is right. They're watching us, they're watching everything we're doing'. And so, from that point on, my family and my in-laws started to join in and said, 'Oh, we should never allow drones in our house, in Auckland. People should never own drones, even the police.' So they are against the idea of having drones... I don't think they were capturing anything, it could be that they were just viewing the neighbourhood, but the idea of having a camera, to look into other people's properties, I think is just purely unethical. – Jacob

Tony, Frank and Jacob discussed their concerns about private drones being used for criminal and/or nefarious purposes. Tony and Frank mentioned the potential for drones to be used to transport drugs, with Tony giving a direct example of how they are already used in Mexico to get drugs across the border into the U.S. Frank also suggested that there is the potential for drones to be used to assist in burglaries by finding out if someone is home or to spy on people:

> … well for crime yep they could. I'm surprised they aren't going, using little drones to drop down to gardens to see whether people are home… they could be used nefariously in a peeping tom situation, if they know someone is living by themselves. Just that whole invasion, or that whole use for perverted reasons… there's also always the possibility that drug dealers could use them to deliver drugs to people, they could be used as drug delivery vehicles. – Frank

Private drones offer individuals the opportunity to conduct their own forms of surveillance, similar to the police. Jacob suggested that the use of surveillance more broadly by the police and the prevalence of narking, will just invigorate gangs to do the same, such as to target rivals:

> And in the future, looking into gang kind of activity, will gangs sponsor some drones for families living next door to suspected rivalries? Can we give you this machine, it's a cool machine, you can take it to the park, but at this particular time, can you just lift it above your fence line and see if you can see this car, this colour, this rego number, and let us know? – Jacob

Findings conclusion

Discussions with participants revealed the vast and complex nature of community leader perceptions regarding the use of drones by police, especially for routine surveillance. While participants had varying backgrounds and specific views, they still had common hopes and concerns about police drones. Participants considered that drones have several useful benefits that they can bring to the police and the wider community, which was underlined in two themes, improving police efficiency and improving safety. While drones are versatile and highly capable, participants were concerned that there are numerous factors, especially the issue of overreliance, which limits the usefulness and acceptability of drones. This highlighted the importance of balance when discussing the use of police drones. Participants were also concerned that drones can impinge on personal privacy. There was a potential concern regarding drones being mismanaged or misused by the police, as an organisation as a whole or by individuals within such through mishandling footage or using them unfairly. There was a key discussion regarding the way forward, with participants suggesting that community engagement, through consultation and informing communities about drones, would be vital for building up a partnership in order to secure support for police drones along with sharing decision-making powers. This would also include hearing and addressing any concerns that communities may have.

While the primary focus was on police drones, participants mentioned some of their concerns regarding private users, including the impact on their personal privacy and the possibility of private drones being used for criminal or nefarious purposes. In many cases, comparisons were made between police drones and other current policing tools with similar functions such as C.C.T.V. and helicopters.

These findings are discussed in the following chapter.

Chapter Five: Discussion

Introduction

This chapter discusses the findings of this study in relation to the research question of: What are the opinions of Auckland community leaders about the use of drone technology by police, including for the purposes of routine surveillance? While there are many studies examining public perceptions of drones, the current study was the first to focus specifically on perceptions of the use of police drones in Aotearoa New Zealand. The majority of the views expressed by community leaders stemmed from their personal perspective, while some were based on the views and feedback of their community members. The views of the community leaders in this study generally shared similarities with those reported in overseas studies examining perceptions of police drones, however, there were several new insights which are discussed in this chapter.

Summary of key findings

Although this was a small study with only seven participants, the qualitative approach and semi-structured interview method allowed participants to expand upon their hopes and concerns, providing insight into some issues that may have been overlooked or mentioned in passing by past research. In general community leaders were quite receptive and open to the idea of the New Zealand Police using drones, which supports the claim that the New Zealand Police (2020) made in their "Proof of Concept" report that the public will most likely be generally accepting of police drones. The only times the "Proof of Concept" mentioned public perceptions was in relation to there being no negative media coverage of police drone deployments during the trial period discussed in the report and that research from the U.K. indicates that the majority of the public are in favour of police using drones (New Zealand Police, 2020). The "Proof of Concept" (New Zealand Police, 2020) report indicated that drones have the potential to improve the ways the police fulfil its goals, strategies and objectives under their broader "Police Strategic Framework"; this included enhancing the ability of the police to do their job more effectively and improving officer safety. Community leaders in the current study indicated two key benefits of police drones: improving police efficiency and improving both personal safety, including for police officers, and community safety, which are closely related to the benefits that the New Zealand Police (2020) outlined.

However, community leaders also outlined several issues and concerns in relation to the practicalities of drones, privacy and the potential for police drone mismanagement. Many of these concerns were consistent with previously identified research examining public perceptions of police drone use in overseas jurisdictions, particularly privacy and greater support for reactive over proactive surveillance and use (Lin Tan, 2021; Klauser & Pedrozo, 2017; Saulnier & Thompson, 2016; Heen et al., 2017; Sakiyama et al., 2017; Anania et al., 2019; Komasova et al., 2020; Sabino et al., 2022). The findings of the current study suggest that the public perceptions of police drones might be more nuanced than previous surveys have suggested, especially when weighing the perceived benefits against the perceived concerns of police drones. Interviews allowed community leaders in the current study to dive deeper into these concerns; they highlighted the importance of balance in terms of police using and not using drones when weighing the perceived benefits of police drones against the concerns associated with their use. Community leaders also suggested that the discussion between reactive and proactive surveillance may be more nuanced than shown in overseas literature, with drones in certain circumstance blurring the barrier between proactive and reactive use. There was also a discussion about the potential for drones to be misused and the mistrust towards the police, with the suggestion that the issue may be with the operator of police drones, rather than the drone itself. Community leaders in the current study expanded on the possible solutions and next steps that could be taken to ensure that police drone use is more appropriate to their communities. This included ideas about police consultation with communities, along with partnership and shared decision making under the broader theme of community engagement. While previous research has mentioned forms of community engagement as a process to ensure police drone use is appropriate and accepted by the public, this was primarily based on researcher interpretations rather than directly asking communities (Lin Tan et al., 2021; Sabino et al., 2022; Sakiyama et al., 2017). Community leaders in the current study expanded on what community engagement might look like while highlighting the complexity of such an undertaking. There was also an added discussion about private drone use, with concerns being raised that were similar to community leader views on police drones.

The literature on police legitimacy suggests that people are more likely to support or accept the police if they perceive the police to be acting fairly during exchanges under the normative perspective and from the public's perception of the outcomes of police services under the instrumental perspective (Heen et al., 2017; Jackson et al., 2015; Mazerolle et al., 2014). While procedural justice is usually discussed in relation to individual exchanges and interactions between police and citizens, the views of community leaders in this current study incorporated many of these procedural justice principles, especially the idea of voice. This suggests that, at least in relation to the current study, procedural justice could be applied to the discussion of

police use of drones, something that has been previously done by some researchers examining public perceptions of police drones in relation to police legitimacy (Heen et al., 2017) and procedural justice (Saulnier & Thompson, 2016).

Interpreting Findings

Importance of balance

One of the key points raised in the current study was the importance of police adopting a balanced approach to the use of drones, especially when there is a perceived emphasis on using police drones over more traditional policing methods including using police staff on the ground. In terms of balance, three key issues were highlighted by community leaders, which included concerns about police overrelying on drones, there being too many drones in the air and balancing the visibility of police drones with inconspicuousness. These three key points highlight why police should not be too hasty in adopting police drones and why the question between using and not using police drones is a careful balancing act that should include weighing up of the perceived benefits against the perceived concerns, particularly where an unbalanced approach to the use of drones for policing might impact public perceptions of the benefits of police drones.

Community leaders have suggested that there are several key benefits of using police drones, which included the potential for drones to improve the efficiency of the police and safety. Several overseas studies that have examined evidence of police use of drones have found that drones can improve the efficiency and effectiveness of police work, including in responding to crimes and investigation of incidents (Dwyer-Moss, 2018; Fox, 2019c; Heen et al., 2017; Schlag, 2013) while improving safety was also a commonly cited benefit in overseas public perception studies (Klauser & Pedrozo, 2017; Lin Tan et al., 2021; Sabino et al., 2022). In the current study safety was split between improvements in personal safety, including the preservation of life and police officer safety, and the improvement in community safety with regards to reducing crime. The other perceived benefit was the potential to improve the effectiveness of police services, which is also a key element that can contribute to improving the perceived legitimacy of the police (Heen et al., 2017; Jackson et al., 2015; Mazerolle et al., 2014). Saulnier and Thompson (2016) suggest that police drones are more likely to garner the support of the public if they are demonstrated to be effective and Heen et al. (2017) note that police drones are more likely to be supported by people who perceive the police to be legitimate and effective.

While police drones were generally perceived to be beneficial, overreliance, or police relying too heavily on police drones over traditional policing, was a key point made by community leaders, which often tied into the potential emotional and social impacts of remote policing. Sabino et al. (2022), in their systematic review of public perception studies of drones, made references to the potential emotional/social impacts of drones, including police drones adding to people's existing fears of drones, social distancing due to less human interaction and a vague mention of overreliance. However, many researchers in the examined studies considered these concerns and risks to be minor due to these issues being cited rarely and were only briefly covered. Sabino et al. (2022) also noted that the public's concerns about overreliance were often quite vague. The current study offers insight into what exactly overreliance means to the community leaders and how it is a key issue that highlights the importance of balance when discussing the more widespread use of police drones. Some community leaders voiced concerns that the focus on drones and remote policing can reduce interpersonal interactions between police officers and local communities, a vital element of policing that one community leader in the current study believed can in some cases help dissuade someone from offending. Some community leaders noted that overreliance on using police drones might lead to a reduced police officer presence in local communities, especially if police start using drones to respond to incidents instead of police staff, which could lead to a negative perception of police, especially as drones could feed into the existing fears of technology and robots. With regards to procedural justice and the perceived fair treatment of citizens (Jackson et al., 2015; Mazerolle et al., 2014; Tyler, 2003), if the public perceives that they are not treated fairly or with respect, such as due to the perceived impact of drones on police-citizen interactions in the current study, then this could potentially contribute to worse outcomes for perceived police legitimacy (Saulnier & Thompson, 2016) or, as seen in this current study, contribute to community leaders and their communities being more likely to reject the use of drones when they are used in such an unbalanced manner. Procedural justice studies highlight that community policing and regular engagement between police and the public are vital elements that can contribute to improving the perceptions that individuals have towards the police and, as a result, the perceived legitimacy of the police (Mazerolle et al., 2014). This would suggest that police should not be too hasty with relying too much on drones if it comes at the expense of traditional policing methods that promote community engagement.

Under the topic of overreliance, community leaders in the current study also discussed the perceived effectiveness of drones in responding to and tackling crime, suggesting that they are not a silver bullet and so police should not rely too heavily on police drones. One community leader noted that helicopters have not had an impact on crime due to there only being a limited

number of police helicopters, so that they cannot be in every single part of Auckland responding to every single emergency call that takes place. This could potentially be circumvented by the suggestion of the New Zealand Police (2020) in their "Proof of Concept" that drones could become standard issue equipment in every police car. This however leads directly to another issue that community leaders had with regards to there being too many drones in the air. When discussing airspace and the presence of drones within it, studies have generally focused on perceived privacy concerns and other potential legal issues related to drone use (Anania et al., 2019; Sabino et al., 2022). The concern in those studies about police drones flying over neighbourhoods was primarily connected with the presence of the drone in the first place, rather than the quantity of drones. While the issue of privacy was highlighted by community leaders in the current study, the issue with there being too many drones in the air was an additional concern which included fears that drones could disrupt airways and endanger aircraft or even wildlife, while also being intimidating for communities if they feel they are under surveillance. These concerns highlight the importance of balance between police using and not using drones, especially if police start emphasising the use of drones to the point that there are too many drones in the air.

Related to the concern about there being too many drones in the air, some community leaders also highlighted the importance of balancing police drone use in that even though drones are quieter than helicopters, they are still quite noisy and could be a considerable nuisance to local communities. Sabino et al. (2022) noted that people are generally more concerned about the sound of, and hearing, drones, rather than seeing them. So, the issue may be with drones being a constant disruption due to their noise in addition to their presence somewhere in the sky. Even then, the same researchers did not consider noise to be a major drawback that had a large impact on public acceptance of police drones, which is consistent with the current study's findings as the majority of community leaders did not mention this concern. One community leader in the current study noted that if there are too many drones in the air, communities may become disgruntled and target police drones by shooting them down. This point was also raised by a participant in the U.S. study by Anania et al. (2019), where the participant suggested that one way local communities could protest the flight of police drones over their neighbourhood was by shooting drones down, if petitions to stop police drone flights did not work. Most community leaders in the current study were also concerned about police drones being targeted such as if people get disgruntled with being watched by police drones or there being too many police drones in the first place, which directly relates to the importance of police adopting a balanced approach in their use of drones. Police drones being shot down could lead to their becoming a safety hazard, with one community leader in the current study for example also being concerned that that if a drone is shot down, then the data onboard might be stolen. According to the New

Zealand Police (2020) “Proof of Concept” report, one of the outlined issues was the potential for locally stored data to be taken by third parties if a drone is stolen or lost, though the New Zealand Police also noted that this can be circumvented with encrypted data transmissions and password locked local storage, which is offered by specific DJI drone models.

The importance of balance was also evident in discussions when community leaders recognised that police drones may need to operate inconspicuously when conducting covert surveillance, on the one hand, but also be easily identifiable as police drones, on the other, in other circumstances. The issue of visibility was mentioned by Sabino et al. (2022) though this was mainly aimed at private drone operators and the difficulty of enforcing legal liability and identifying drone operators due to the anonymity that drones offer rather than the visibility of police drones. Some community leaders suggested that police drones should be visibly marked by some sort of colour coding or emergency lights or siren, similarly to a police car. Though again this is balanced against the idea that if police drones are meant to conduct surveillance covertly, then they need to be as inconspicuous as possible. One community leader suggested that if drones are not visible on the road, then they cannot have a meaningful impact on making the roads safer or deterring speeding since visibility and perceptions can play into human behaviour. Intentionally keeping drones inconspicuous in order to conduct surveillance covertly, could relate to the perceived trustworthy intentions of the police, a key element of procedural justice (Tyler, 2003). Jackson et al. (2015) note that part of the measure of trustworthy intentions is for the police to consider and act in citizens’ interests and wellbeing. Lin Tan et al. (2021), in their Singaporean study, reported that people are usually more supportive of police drones when drones are used to achieve some sort of collective safety benefit, as opposed to being used to personally inconvenience someone, such as for the issuing of traffic tickets. Perhaps if an individual sees a police drone and perceives that the police are intentionally trying to keep drones inconspicuous, for example to capture surveillance footage at the individual’s personal privacy expense, rather than to use them for a benefit of public safety, then this could lead to potential backlash and an overall negative perception of police drones. However, some police cars are intentionally unmarked in order to enable them to be more covert. Police might have to balance and consider the visibility of police drones between situations when police drones need to be inconspicuous and the view of community leaders that police drones should be easily identifiable.

These points highlight that there is an important element of balance that needs to be considered when police begin to use drones more widely. This includes the potential for an overreliance on police drones with police putting too much of an emphasis on using drones at the expense of

traditional policing methods, police having too many drones in the air and weighing up the need for drones to be visible versus the benefit of drones being inconspicuous. An unbalanced approach to the use of drones, where concerns outweigh the benefits, could negatively impact the perceived legitimacy of the police and the willingness of communities to support police using drones.

Proactive vs reactive use

When discussing the proactive vs reactive[14] use of police drones, community leaders in the current study indicated a preference for reactive use of police drones as opposed to proactive use. However, this preference was more nuanced than in previously identified studies, as community leaders offered insights into situations where proactive use could be acceptable, which revolved around the aim of surveillance and the location that it takes place. Another discussion revealed that drones could potentially blur the division between reactive and proactive use, which might complicate perceptions of police drone use.

The preference for reactive over proactive surveillance was echoed in several studies that have explored public perceptions of this comparison in other jurisdictions (Heen et al., 2017; Sabino et al., 2022; Sakiyama et al., 2017). The studies have noted that this was because proactive use of police drones usually elicited greater perceived privacy impacts, with Heen et al. (2017) noting that with proactive use there is usually no clear victim to justify the presence of a drone. Reactive use is on the other hand associated with drones reacting to a more immediate and clear danger. However, these quantitative studies did not examine the situations or cases where proactive surveillance might be deemed acceptable and why. While community leaders in the current study generally indicated a preference for reactive use of police drones, it did not mean that they completely rejected drones being used in certain proactive applications, depending on the aim of the surveillance operation and the location that it takes place in. Two examples provided by community leaders of such circumstances involved crowd management, including the monitoring of large gatherings that have the potential to become violent or to monitor the safety of people during dangerous storms and floods[15], with police drones in those specific situations potentially directly contributing to minimising injury and preserving life. This is consistent with the observation in overseas surveys that people are more likely to support police

[14] Community leaders understood reactive use to mean drones being used as a "reaction" to an incident and as a result police drones are used in a targeted and specific way. Proactive use was understood to mean that drones might already be in the air and are "actively" searching for or deterring crime.
[15] This concern was particularly relevant at the time of interviewing as Auckland was severely impacted by a tropical cyclone which resulted in dangerous flooding and damage to property including houses and cars.

drone use when there is a risk to personal safety (Komasova et al., 2020; Saulnier & Thompson, 2016) though the comparison in those studies was primarily in relation to (reactive) search and rescue rather than crowd management. The view of community leaders in the current study concerning proactive surveillance suggests that crowd management and potentially other proactive uses of police drones are not completely rejected, although there has to be a good justification, such as immediate danger or safety considerations to merit its use.

Furthermore, discussions revealed that the location where potential surveillance occurs and where community leaders resided had an influence on their preferences in relation to reactive vs proactive use. Sakiyama et al. (2017) suggest that one reason why there is greater support for use of drones in reactive surveillance is that it is often associated with search and rescue, which usually takes place in remote areas where there is less likelihood of privacy intrusion, compared to a more densely populated urban area. However, in this current study the community leader and community from the rural part of Auckland were especially concerned about the privacy impacts of police drones being flown, particularly as they preferred their peace and quiet. This is consistent with the findings by Sabino et al. (2022) that found rural communities voiced concerns about privacy more often than urban ones. Likewise, in the current study community leaders from the inner-city area had less privacy concerns than the rural community leader. One possible reason is that these urban-based community leaders were more concerned about the issues of crime in their surrounding area with the potential safety benefits of police drone use outweighing any perceived privacy impacts. This view would stand in contrast to the study of public perceptions in the U.S. by Anania et al. (2019) who found that privacy concerns usually outweighed any perceived benefits of police drone use such as reduction in crime or improvements of safety.

The preferences of community leaders in the current study regarding reactive vs proactive surveillance could potentially be explored with regards to police effectiveness, under the instrumental perspective of police legitimacy which focuses on the outcomes of police services (Heen et al., 2017; Jackson et al., 2015; Mazerolle et al., 2014). Some community leaders in the current study were more likely to support proactive surveillance if it also contributed to tackling crime, and thereby improving safety, for example if it targets gangs who have a negative impact on communities. This is consistent with observations in some overseas public perception studies, which suggest that the public are more supportive of drone applications that are deemed to be effective (Heen et al., 2017; Saulnier & Thompson, 2016). In this regard, the current study suggests that concerns for safety could potentially outweigh any potential concerns for privacy that a more proactive use of police drones usually implies.

A further discussion in the current study raised an important point that the division between reactive and proactive surveillance might not be that rigid and could potentially be very easily blurred by police drones. A community leader noted an example that, if a police drone is called in response to a report of drug-related activity in the backyard of a house but the police does not know the exact location, then they may have to perform a wider search of the backyards of several houses, with reactive surveillance quickly becoming proactive. This was a point that was not raised or discussed by any of the previously identified studies. Some studies have noted that one concern with police drones is the lack of clarity or certainty over how they are used and in what situations (Lin Tan et al., 2021; Sabino et al., 2022; Saulnier & Thompson, 2016), a concern also shared by some community leaders in the current study. If police drones can very easily blur the line between reactive and proactive applications, then this could potentially undermine community leaders' acceptance of even reactive use of police drones as it could potentially morph into proactive surveillance.

These points highlight that while community leaders in the current study are more likely to support reactive use of police drones, certain factors, particularly concerns for personal safety, may justify the use of drones in more proactive settings if such concerns outweigh potential privacy impacts. There is also the possibility of police drone use blurring the distinction between reactive and proactive surveillance, which may contribute to complicating public perceptions of police drones even further.

The issue of the drone vs its operator

An observation that can be made from the discussions with community leaders in the current study is that preexisting concerns about the police are just as important as the concerns with drones. As one community leader explicitly noted, the issue is not with the drones so much as it is with its operator, that is, the police. This suggests that perceptions of communities towards the police need to be considered, including perceptions surrounding the potential misuse of police drones and mistrust being based on past experience rather than something specific to police drones.

The issue of the police as operators of drones, rather than the drone itself, can be discussed from the viewpoint of procedural justice and other elements of police legitimacy. While procedural justice has primarily been discussed and applied in regard to individual interactions between

police officers and citizens, especially with fair treatment during these exchanges (Jackson et al., 2015; Mazerolle et al., 2014; Tyler, 2003), many concerns that community leaders in the current study spoke about in relation to both drones and the police resonate with these principles. This included the procedural justice principles of neutrality, trustworthy intentions, respect, along with lawfulness and distributive justice. While the New Zealand Police's (2022) "New Technology Framework" does not specifically mention police legitimacy, many concepts including the trust and confidence of the public towards the police and its "social licence" to continue its work, are discussed as being important factors that need to be observed under the process of trialling and adopting new technologies. Ponsaers (2015) notes that the perceived justice or fair treatment by police can be more important to how citizens perceive the police than the perceived effectiveness of police services. With drones, this could mean that before addressing concerns about police drones, it may be equally important to address the mistrust that exists towards the police and the concerns about misuse of drones by the police as operators.

Cultural influences, including ethnicity, have been considered by past researchers to play a major role in influencing public perceptions of police drones (Anania et al., 2019; Bentley, 2018; Heen et al., 2017; Lin Tan et al., 2021; Sabino et al., 2022). Some community leaders in this current study directly mentioned that Pacific, and especially Māori, communities are more likely to be distrustful of and hold a negative view of the police. This is consistent with overseas studies that have found similar variations in the support of police drones, with ethnic minorities and Indigenous groups, such as African-Americans in the U.S. (Anania et al., 2019) and First Nations, Inuit and Métis in Canada (Saulnier & Thompson, 2016), being marginalised by police in the past, with these groups being concerned about inherent racial biases and abuses of power (Heen et al., 2017; Sabino et al., 2022). In the current study the experiences of Indigenous and minority group community leaders and their communities with being policed reflected the specific context of Aotearoa New Zealand. Nonetheless the voiced concerns from the Māori and Samoan community leaders were similar to those reported in a study by Anania et al. (2019) which found that African-American minorities were concerned about drones continuing institutional racism and racial profiling. Community leaders in the current study noted a concern that there would be a potential for oversurveillance and unnecessary targeting of Māori and Pacific communities if police drones are introduced, fuelled partly by stereotypes of these communities being hotbeds of crime. This concern is consistent with the instrumental perspective, particularly distributive justice, which echoes the ideas that the public might be more supportive of the police if its services are fairly distributed across society (Jackson et al., 2015; Ponsaers, 2015; Tyler, 2003). Similarly, the issue in the current study is that resources have been unfairly concentrated on South-Auckland in the past, creating the image of those

suburbs being the “problematic” ones, with the added concern that police drones will simply perpetuate this racial bias if they are introduced more widely. Although the normative perspective on police legitimacy is usually discussed in relation to individual exchanges (Heen et al., 2017; Hough, 2020; Jackson et al., 2015; Ponsaers, 2015), it could also be applied to the discussions with community leaders in the current study in relation to the principles of honesty, impartiality, and lack of bias. These discussions suggest that the exploration of public perceptions of police drones cannot be approached separately, or in isolation, from perceptions of the police itself, because concerns for the fair treatment of communities and an inherent bias in police decision-making can contribute to the mistrust that some community leaders have towards police drones and even outweigh the perceived benefits.

Similarly, some community leaders in the current study believed that the police, and in one case the government as a whole, might not be completely honest in how they use drones, such as when they might promise to conduct one specific type of surveillance and, in reality, renege on their promise and expand their surveillance operations. Here, the issue is more with the police not being trusted as operators of drones, as opposed to the impact or issues of drones themselves. A similar type of issue was raised by Bentley (2018) under the concept of “mission creep”, which is the concern that drones might be used beyond their originally intended scope, such as search and rescue, and used more widely in surveillance and tracking. One specific example raised in the current study was that police could very easily justify surveillance under the principle of it being a safety exercise, rather than calling it what it is: surveillance. Saulnier and Thompson (2016) noted that one concern in their Canadian study was that police might gather a large amount of footage with questionable motivations or justifications, which opposes the notion of “trustworthy intentions” discussed in procedural justice studies (Jackson et al., 2015; Mazerolle et al., 2014; Ponsaers, 2015; Tyler, 2003). Trustworthy intention in part requires police to have the best interests of citizens in mind under the normative perspective. This suggests that if the police do not demonstrate that they have the best interests of the public in mind while also not acting fairly and with honesty when using drones, then this could influence communities to be more likely to reject police drones, no matter what the perceived benefit might be. Lawfulness is another factor that is usually tied into the normative perspective, suggesting that police need to act within the confines of laws along with other associated moral obligations that society may have (Jackson et al., 2015; Ponsaers, 2015). Some community leaders were concerned that police drones might either directly violate privacy laws, or some police officers could abuse their position to unlawfully obtain footage. One community leader noted that from the overarching viewpoint of their community, they are less concerned about the specifics of police drones, but rather with the fact that there is even a police force in the first place with that viewpoint suggesting that the police are perceived to have almost no legitimacy

or authority, with the police only there to be an intrusion and "out to get them". From this example it can be understood that some people are more concerned about the wider issue of the police and its impact on their communities, rather than the specific details of police drones and any potential benefits.

These discussions reinforce the idea that in some cases the issue may be with the police as operators of drones, rather than the drones themselves. Mistrust for the police and concerns for potential misuse of police drones, especially due to the past experiences of some of the leaders' communities in the current study, have contributed to influencing the hesitation that some community leaders had towards accepting the widespread use of drones by the police. The findings of this current study suggest that the deeper issue of mistrust towards police including the perceived legitimacy of the police needs to be explored and addressed, as this may have an influence on the perceptions that some communities may have towards police drones. If communities cannot trust the police to use resources correctly and approach communities fairly, then communities might not be able to trust the police to use drones.

Community engagement

In the current study, when asked what could help alleviate some of the concerns surrounding police drones, community leaders often cited community engagement as a key solution, with emphasis on mutual partnership and cooperation to allow communities to have a say and potentially influence how police drones are used. These discussions provided insight into what community engagement could look like, which highlighted the complexity of such a process and how in some cases it goes beyond simple meetings or hui where people only get to ask questions.

Previously identified studies examining public perceptions have primarily focused on perceptions regarding hopes and concerns for police drones, with very few discussions on what should be done next from the point of view of the participants (Sabino et al., 2022). However the idea of police engaging with communities, especially to hear the views and give opportunities for participants to voice concerns, is not new and has been previously discussed by many researchers (Lin Tan et al., 2021; Sabino et al., 2022; Sakiyama et al., 2017; Saulnier & Thompson, 2016), albeit these discussions have primarily been based on researcher interpretation as opposed to directly asking participants to describe what the process might look like.

The main reason why community engagement is important is because it offers communities an opportunity to voice their concerns and also have questions answered. The idea of giving members of communities a voice to express their concerns is a fundamental principle under procedural justice (Jackson et al., 2015; Mazerolle et al., 2014; Saulnier & Thompson, 2016; Tyler, 2003). Saulnier and Thompson (2016) suggest that if communities perceive that they are not being offered opportunities or a voice to give input into new policies regarding the police's use of drone, then those same communities might feel less inclined to cooperate with police. Voice itself directly links to decision-making, with a particular point raised by a community leader in the current study that community engagement should go beyond simple consultation to also enable communities to have direct involvement in the decision-making process. This highlights the idea that consultation and actual decision-making are two different processes, where the former usually encompasses an exchange of information and the latter enables active participation in making final decisions. Being part of the decision-making process would, in the view of the community leader, ensure that the police are actually implementing changes that communities consider important, rather than just promising to do something and not following through. Communities may also be more likely to accept or support police drone use, if parameters for its use are directly based on feedback and decisions of the community. New Zealand Police (2022) mentions decision-making as an important step in their "New Technology Framework", which they note can be achieved through enabling Māori, Pacific and the wider public to participate in co-design.

Some community leaders were uncertain about what police drone use might look like and wanted better clarity regarding the specifics of when or how they can be flown, including guarantees that drones will not be misused. This is reflective of the idea of transparency or clarity in making it clear to the public what the intentions and goals of the police are, which is another key element of police legitimacy (Tyler, 2003; Tyler & Meares, 2019). Mazerolle et al. (2014) note that when police increase their efforts to tackle crime, such as by increasing patrols, they can make it clear why they are doing so, as a clear explanation could help contribute to increasing the legitimacy of the police. While discussing concerns and issues is important, police should also demonstrate the benefits of police drones to their communities, since, as Lin Tan et al. (2021) have put it, people are more likely to support drone use if it contributes to a collective safety benefit. One community leader noted that some people are still in the mindset of drones being a toy, rather than a useful tool, so the police could help explain and potentially demonstrate the benefits of police drones. This is consistent with the view of several researchers who note that lack of awareness of the nature of police drones, partly due to its novel nature, has contributed to the general apprehension that communities have towards police drones (Anania et

al., 2019; Heen et al., 2017; Sakiyama et al., 2017) with better transparency about police drone use potentially helping dispel these issues. These ideas of decision-making, transparency and cooperation align with democratic policing, which emphasises the importance of developing a good partnership between the police and the communities they serve to ensure that the police have the best interests and support of the community (Coliandris & Coliandris, 2015; Hough, 2020). This is also fundamental to the policing by consent model, which the New Zealand Police (2022) follows, that requires the support of the public for the police, which can also be achieved through transparency.

Rather than just having a one-off exchange, one community leader noted police should continually return to the communities to show how police drone use has progressed, what sort of benefits and challenges have been encountered and to have discissions about what could be done further. Furthermore, several community leaders said that community engagement should incorporate as many different communities as possible to ensure that a wide variety of views and perceptions are captured in the process, which aligns with the social constructionism worldview which suggests that views are highly subjective and unique to the particular context that an individual comes from (Bryman, 2012; Creswell, 2009). Some community leaders in the current study also raised questions about who actually gets to represent communities in these discussions. The suggestion was that communities should be the ones who decide who represents them, rather than the police, who may have their own preferred representatives.

Another key point for community leaders is that there should be refinement of rules covering the use of police drones, suggesting that there is still room for improvement. Some community leaders noted that existing legislation that already covers the use of police surveillance technologies such as C.C.T.V. and helicopters could be adapted to include police drones as well. Some community leaders were also unaware or uncertain about what rules and legislation regarding drones already exist. Previously identified literature has noted that overseas experiences with trying to regulate and legislate for police drones have often been quite difficult, particularly in the U.S, due to the versatility of drones and how they can circumvent existing legal boundaries and limitations placed on helicopters and C.C.T.V. in relation to the Fourth Amendment (Boyle, 2020; Dwyer-Moss, 2018; Galizio, 2015; Schlag, 2013). The New Zealand Police (2020) in their “Proof of Concept” referenced four existing rules that regulate and impose constraints on the police’s use of drones, including Part 101 Rules, Part 102 Rules, Civil Aviation Act 1990, and Search and Surveillance Act 2012. The New Zealand Police (2020) concluded that certification under Part 102 Rules can give them more leeway to use drones and bypass constraints imposed on drones under Part 101 Rules and Search and

Surveillance Act 2012, particularly with regards to receiving consent before flying over private property. At the time of writing, the New Zealand Police already hold a certification under Part 102 Rules (Civil Aviation Authority, 2023) which allows the police drone to be treated like a manned aircraft, such as the police helicopter, when flying over private property. A couple of community leaders also discussed potential search warrant requirements, something that the New Zealand Police (2020) noted would be necessary if a drone is to survey or record private activity in a private location. Community engagement would have to also include a discussion about the rules governing drone use: Even though necessary mechanisms are already in place to regulate the use of drones by police, if communities are uncertain about these rules and believe that drone use might be unlawful, this could add to potential mistrust towards the police and hesitation to accept police drones. This relates back to the idea of transparency, where police can make it clear to communities how and when drones can be used, including the rules that regulate drone use and ensure it is lawful.

While consultation and hearing community input is important, some community leaders noted that there is a caveat to doing this which might undermine the goal of utilising drones to improve safety. The community leaders suggested that people might not fully understand the benefits of police drones and as a result police might have to ignore community engagement processes altogether if the benefits of using drones outweighs any potential concerns. However, communities not fully understanding the benefits of police drones, and only seeing their negative aspects, could be partially the result of a lack of transparency around police drones, which as noted before is a key principle that needs to be addressed, both under procedural justice and also democratic policing. Another community leader noted that police might not want to tell communities everything about police drones as this might undermine the function of the drone as a surveillance tool and reveal to the public ways to circumvent police drones. However, these community leaders suggested that consultation would still be a safe option as it would ensure that the police have at least heard what concerns and questions exist.

Discussions with community leaders in the current study point to engagement with communities as a very important process for ensuring that questions can be asked, drones are demonstrated to be beneficial, and concerns can be addressed. Community engagement could contribute to garnering support for the police's use of drones if concerns are addressed and police drone use is conducted in a manner that is appropriate to the communities being policed. However, differing viewpoints on what community engagement might look like and the many different steps that may be involved suggest that community engagement may be a very complex process that requires many different considerations and factors to be weighed.

Reviewing the study

Limitations

One clear limitation of this study is in its scale, comprising interviews with seven community members. While some participants sought the views of community members and reported those views in their interview, they did not indicate how many community members they consulted with. Given the small sample size, the findings cannot be generalised to the larger population (Liamputtong, 2020). That is, I make no claim that the perceptions reported here are necessarily shared by all members of the public or that they represent the full spectrum of perceptions. However, the nature of the study was focused less on serving as a database of all views and rather focused on exploring some of the specific issues that might exist. The findings of this study are still beneficial as they offer initial insight for future research and act as a potential foundation from which police drone use can be addressed further. A quantitative survey with a larger pool of participants may have allowed for a wider variety of perceptions to be explored; however, this could be at the cost of being able to examine individuals' perceptions with the same vigour and detail if it is not explored through a mixed-methods approach that also includes interviewing.

Another potential limitation could have been some form of bias in the sample. Bias may occur in multiple ways such as in the inclusion criteria and when there are non-random selection processes to choose potential participants (Bryman, 2012). Since there was a purposive sampling process, it was important to ensure that potential participants were recruited from a large variety of social, cultural and ethnic backgrounds to allow for a variety of views to be expressed and included. Bryman (2012) notes that there may also be bias in a sample due to the issue of non-response, as people who do not want to participate can differ from those who do. As an example, Bryman (2012) cites a study of obesity rates of British children in different areas, suggesting that parents who had children who were heavier were more likely to refuse to participate. Bias in this current study might have occurred in one of two ways: There may have been potential for participants to agree to participate in this study if they were vehemently opposed to drones or those participants that agreed to participate may have already been predisposed to accepting police drones. However, in the current study, community leaders were generally quite balanced in their viewpoint, identifying both positives and negatives of police drone use. Because the current study includes a small sample these findings cannot be

generalised to the wider population and future research, particularly quantitative or mixed methods, would have to examine this.

The inclusion of the fact sheet (see Appendix E), and the choice of facts provided (including those facts that were not included), may have influenced the perceptions that community leaders had with regards to police drone use, especially as this was the first time that most participants had heard about drones being used, specifically for policing. Exclusion of some details including privacy issues and other ethical concerns, associated with drone use overseas, may have presented drone use in a more positive light, free from any criticism. Even though the fact sheet did not reference privacy, it was still a core issue that was spontaneously brought out by participants and discussed from different perspectives. In the end, many of the views of participants on police drone use were more nuanced than the fact sheet may have implied. I cannot rule out the possibility that participants' perceptions might have differed if other facts were presented.

Some information that did not directly contribute to the main research question or was perceived to be off topic had to be ignored. This relates to researcher reflexivity and how different researchers might interpret data in certain ways. For example, views that may have actually been insightful could have been overlooked, despite best efforts to avoid this. There were also practical constraints in terms of time, as this is a Master's thesis and there were only so many interviews that could be scheduled and analysed. Some participants were quite busy and short on time, so some interviews had to be shortened. This may or may not have also contributed to some information relevant to the research question being missed out. However, in some cases answers to follow-up questions were sent either via email or added at the end of transcripts, when they were sent in for review. Even with these limitations in mind, this study serves as a potential foundation for future research regarding the use of police drones within Aotearoa New Zealand, confirming and expanding on existing research and identifying some of the next steps that could be worked towards.

Recommendations

There are a few practical applications and implications of this study for future efforts aimed at expanding the use of drones by the New Zealand, while ensuring that police drone use is appropriate to local communities. What can be done next is a matter of beginning dialogue with local communities through regular meetings or hui. There needs to be a good partnership developed between the New Zealand Police and local communities, with this sort of relationship

enabling better cooperation and mutual understanding. We know that drones have many benefits both for communities and the police. We also know that there are many concerns associated with police drones, both in terms of their potential use and within the context of the experiences of some communities with the police and surveillance in the past. Even though there are many issues with drones, overseas evidence and even the New Zealand Police's (2020) report shows that their use by police will inevitably increase. This takes me back to the quote by Byrne and Max (2011, p.32), "Any modern society needs police who can make good use of technology. If for no other reason because criminal adversaries with an alternative code will find ways of using technology."

Some of the issues that community leaders have with police drones are with their potential application and use, rather than with the drone itself. The New Zealand Police (2022) already have their "New Technology Framework" in place which is consistent with the concepts of procedural justice, police legitimacy more broadly and democratic policing. There are still many questions to be asked about what police drone use will look like, so there needs to be that dialogue with communities, so that questions can be asked, and clarity may be given while concerns are addressed. If communities can be part of the decision-making process, then this could give better guarantees to communities that police drone use is appropriate and fair.

Initially police might find themselves limited to only being able to use drones in a reactive way, since that type of drone application usually elicits less concerns than proactive use does, at least until police can demonstrate to the wider public that police drone use is lawful, fair and beneficial. Public perceptions of police legitimacy can be related to the perceived effectiveness of the police (Jackson et al., 2015; Mazerolle et al., 2014; Ponsaers, 2015) so if police drone use is demonstrated to be effective then this may enable greater support for the police (Heen et al., 2017; Saulnier & Thompson, 2016). This might enable other avenues of drone applications to be explored, including more proactive surveillance, should the necessary mechanisms be put in place to address concerns for privacy. Again, it goes back to having partnership and a good working relationship between local communities and their police.

Future research

A lot of work can be done by researchers to further explore public perceptions of police drones within Aotearoa New Zealand and maybe even abroad. A mixed-methods or quantitative study could compare some of the views expressed in this current study with a larger sample of the New Zealand population. While this current study took place in Auckland, there was still

variation in some views depending on if the community leader was from a more urban or rural area. Future research could examine and compare public perceptions in other regions, especially those that are more rural and remote than Auckland. The difference between reactive and proactive surveillance could be explored further, including the potential for one to blur into the other, and if there even really is a purely reactive or proactive use of a police drone. Future research could also examine to what extent personal experiences with private drones can contribute to and influence perceptions of police drones. Many people's first impressions and experiences with drones are with those that are flown by private users. Understanding this dynamic better could give insight into understanding public perceptions of police drones, particularly in relation to the issue of the drone versus its operator. Future research could also examine further why sometimes helicopters might be more acceptable to the public than drones in order to understand under what circumstances a helicopter is preferable.

The current study suggest that principles of procedural justice and other key elements of police legitimacy are important when discussing the perceptions of community leaders. While some studies have discussed procedural justice and police legitimacy in relation to police drones, future research could examine the connection between perceptions of police drones and procedural justice, and if there is a greater causal relationship with police legitimacy (Nagin & Telep, 2017; Thacher 2019). The current study did not examine the weaponisation and militarisation of police drones, which is something that future research could also explore. While I could not find references to the New Zealand Police planning to weaponise or militarise drones, nor was there any mention of such a concern by community leaders, there is already a growing trend overseas particularly in the U.S. to arm drones (Coliandris & Coliandris, 2015; Davis, 2019; Enemark, 2021; Fox, 2019c).

Conclusion

In general community leaders were quite open and receptive to the idea of the New Zealand Police using drones, suggesting that drones could contribute to improving police efficiency and improving safety. Community leaders also raised concerns about the practicalities of drone use, privacy and police drone mismanagement. Several key findings were interpreted from this, including the importance of police adopting a balanced approach to drone use, the intricacy of reactive vs proactive use of police drones and how some community concerns may be with police as operators of drones rather than with the drone itself. Community engagement, involving partnership and cooperation, was highlighted by community leaders as an important next step for alleviating some of the concerns that communities have, while also increasing the

chances that drone use is, and is perceived to be, acceptable and appropriate. There was also a key point raised about community engagement going beyond consultation and involving communities in actual decision making to ensure that concerns are addressed. As part of this process, communities need to be better informed by police about how and when drones are used, while also provided guarantees that drone use will be beneficial, appropriate, and fair.

In similar vein, there are plenty of important applications, and implications, of this study for both future research and any efforts made to explore the expansion of police drone use in either Auckland or the wider country. We already know some of the hopes and concerns that communities have towards police drones. Participants were clear that now is the time to begin the process of community engagement and dialogue to ensure that drone use is pursued for the collective benefit of Aotearoa New Zealand. Drones in general have the potential of changing society, so perhaps the discussions should not stop at police drones. Perhaps Aotearoa New Zealand needs a larger discussion on how we want to implement these influential, albeit worrying, technologies.

References

Anania, E. C., Rice, S., Pierce, M., Winter, S. R., Capps, J., Walters, N. W., & Milner, M. N. (2019). Public support for police drone missions depends on political affiliation and neighborhood demographics. *Technology in Society*, *57*, 95-103. https://doi.org/10.1016/j.techsoc.2018.12.007

Bentley, J. M. (2018). Policing the police: balancing the right to privacy against the beneficial use of drone technology. *Hastings Law Journal*, *70*(1), 249-296. https://heinonline-org

Boyle, M. J. (2020). *The Drone Age: How Drone Technology Will Change War and Peace*. Oxford University Press. https://doi.org/10.1093/oso/9780190635862.001.0001

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2020). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, *18*(3), 328-352. https://doi.org/10.1080/14780887.2020.1769238

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford University Press. https://handoutset.com/wp-content/uploads/2022/05/Social-Research-Methods-4th-Edition-Alan-Bryman.pdf

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, *56*, 1391-1412. https://doi.org/10.1007/s11135-021-01182-y

Byrne, J & Marx, G. (2011). Technological innovations in crime prevention and policing. A review of the research on implementation and impact. *Journal of Police Studies*, *3*(20), 17-40. https://www.ojp.gov

Civil Aviation Authority. (2020). *New Zealand drone research.* PowerPoint Presentation (aviation.govt.nz)

Civil Aviation Authority. (2023). *Drones.* Aviation. Retrieved July 23rd, 2023, from https://www.aviation.govt.nz/drones/

Coliandris, M., & Coliandris, G. (2015). Is anyone remotely interested? The rise of the police drone. *Australasian Policing*, *7*(1), 15-25. https://search.informit.org

Collins Dictionary (n.d.). Community Leader. In *Collins Online Dictionary.* https://www.collinsdictionary.com/dictionary/english/community-leader

Creswell, J. W. (2009). *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Sage. http://www.mim.ac.mw/books/John%20W.%20Creswell's%20Research%20Design%203rd%20Ed.pdf

Cunneen, C., & Tauri, J. (2016). *Indigenous Criminology*. Policy Press. https://doi.org/10.2307/j.ctt1t893kz

Cutrer, J. (2018). *CBP Predator B Drone San Angelo Regional Airport.* Flickr. https://www.flickr.com/photos/joncutrer/45065114421/in/album-72157695327697220/

Davis, O. (2019). Theorizing the advent of weaponized drones as techniques of domestic paramilitary policing. *Security Dialogue, 50*(4), 344-360. https://doi.org/10.1177/0967010619843483

Deckert, A. (2017). A level playing field: Conceptualizing an empowering research framework for criminologists who engage with marginalized communities. *Critical Criminology, 25*, 559-575. https://doi.org/10.1007/s10612- 017-9367-6

Doyle, L. McCabe, C., Keogh, B., Brady, A., McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing, 25*(5), 443-455. https://doi.org/10.1177/1744987/119880234

Dwyer-Moss, J. (2018). The sky police: Drones and the fourth amendment. *Albany Law Review, 81*(3), 1047-1070. https://heinonline.org/HOL/LandingPage?handle=hein.journals/albany81&div=37&id=&page=

Enemark, C. (2021). Armed drones and ethical policing: Risk, perception and the tele-present officer. *Criminal Justice Ethics, 40*(2), 124-144. https://doi.org/10.1080/0731129X.2021.1943844

Federal Aviation Authority. (2022). *FAA Aerospace Forecast: Fiscal Years 2022-2042.* https://www.faa.gov/sites/faa.gov/files/2022-06/Unmanned_Aircraft_Systems.pdf

Fisher, D. (2013). *Police use drones to catch criminals.* New Zealand Herald. https://www.nzherald.co.nz/nz/police-use-drones-to-catch-criminals/7ESMNMIRIJRF5QKOWEMAVPTMPQ/

Fox, S. J. (2019a). Positioning the drone: Policing the risky skies. *Issues in Aviation Law and Policy 18*(2), 295-332. https://heinonline.org/HOL/LandingPage?handle=hein.journals/isavialp18&div=19&id=&page=

Fox, S. J. (2019b). Policing: Monitoring, investigating and prosecuting 'drones'. *European Journal of Comparative Law and Governance, 6*(1), 78-126. https://doi.org/10.1163/22134514-00601003

Fox, S. J. (2019c). Policing – The technological revolution: Opportunities & challenges! *Technology in Society, 56*, 69-78. https://doi.org/10.1016/j.techsoc.2018.09.006

Galizio, G. J. (2015). A digital albatross': Navigating the legal framework of domestic police drone technology versus privacy rights in Massachusetts and beyond. *Suffolk Journal of Trial & Appellate Advocacy, 20*, 117-143. https://heinonline-org.

Gergen, K. J. (2015). *An invitation to Social Construction* (3rd ed.). SAGE Publications. https://doi.org/10.4135/9781473921276

Gettinger, D. (2020). *Public Safety Drones (3rd ed.).* Centre for the Study of the Drone at Bard College. https://dronecenter.bard.edu/files/2020/03/CSD-Public-Safety-Drones-3rd-Edition-Web.pdf

Given, L. M. (2008). *The SAGE Encyclopedia of Qualitative Research Methods* (Vols, 1-0). SAGE Publications. https://doi.org/10.4135/9781412963909

Heen, M. S. J., Lieberman, J. D., & Miethe, T. D. (2017). The thin blue line meets the big blue sky: perceptions of police legitimacy and public attitudes towards aerial drones. *Criminal Justice Studies, 31*(1), 18-37. https://doi.org/10.1080/1478601x.2017.1404463

Hough, M. (2020). *Good Policing: Trust, Legitimacy and Authority*. Policy Press. https://doi.org/10.2307/j.ctv19cwb43

Jackson, J., Hough, M., Bradford, B., & Kuha, J. (2015). Empirical legitimacy as two connected psychological states. In Mesko, G., & Tankebe, J (Eds.). (2015). *Trust and Legitimacy in Criminal Justice: European Perspectives* (137-160). Springer Cham. https://doi.org//10.1007/978-3-319-09813-5

Karstedt, S. (2015). Trust in transition: Legitimacy of criminal justice in transitional societies. In Mesko, G., & Tankebe, J (Eds.). (2015). *Trust and Legitimacy in Criminal Justice: European Perspectives* (3-31). Springer Cham. https://doi.org//10.1007/978-3-319-09813-5

Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: A systematic review. *Research in Nursing & Health, 40*, 23-42. https://doi.org/10.1002/nur.21768

Klauser, F., & Pedrozo, S. (2017). Big data from the sky: Popular perceptions of private drones in Switzerland. *Geographica Helvetica, 72* (2), 231-239. https://doi.org/10.5194/gh-72-231-2017

Komasova, S., Tesar, J., & Soukup, P. (2020). Perceptions of drone related risks in Czech society. *Technology in Society*, *61*, Article 101252. https://doi.org/10.1016/j.techsoc.2020.101252

Liamputtong, P. (2020). *Qualitative Research Methods* (5th ed.). Oxford University Press Australia and New Zealand.

Lin Tan, L. K., Lim, B. C., Seng Yeo, V. C., Park, G., & Low, K. H. (2021). Public acceptance of drone applications in a highly urbanized environment. *Technology in Society, 64*, Article 101462. https://doi.org/101016/j.techsoc.2020.101462

Lynch, R. (n.d.). *Phantom 4 Drone.* Public Domain Pictures. https://www.publicdomainpictures.net/en/view-image.php?image=190377&picture=phantom-4-drone

Mazerolle, L., Sargeant, E., Cherney, A., Bennet, S., Murphy, K., Antrobus. E., & Martin, P. (2014). *Procedural Justice and Legitimacy in Policing.* Springer Cham. https://doi.org/10.1007/978-3-319-04543-6

Nagin, D. S., & Telep, C. W. (2017). Procedural justice and legal compliance. *Annual Review of Law and Social Science, 13*, 5-28. https://doi.org/10.1146/annurev-lawsocsci-110316-113310

New Zealand Police. (2020). *Remotely Piloted Aircraft Systems (RPAS) Proof of Concept (POC): Evaluation Report*. https://www.police.govt.nz/sites/default/files/publications/rpas-poc.pdf

New Zealand Police. (2023). *NZ Police Technology Capabilities List.* https://www.police.govt.nz/sites/default/files/publications/technology-capabilities-list.pdf

New Zealand Police. (2022). *New Technology Framework.* *https://www.police.govt.nz/sites/default/files/publications/new-technology-framework.pdf*

Orwell, G. (2016). *1984.* (C. Wood, Eds.). Text Publishing Company. (Original work published 1949)

Ponsaers, P. (2015). Is legitimacy police property? In Mesko, G., & Tankebe, J (Eds.). (2015). *Trust and Legitimacy in Criminal Justice: European Perspectives* (93-110). Springer Cham. https://doi.org//10.1007/978-3-319-09813-5

Rossiter, M. T. (2019). The impact of police technology adoption on social control, police accountability, and police legitimacy. *Public policy and governance, 31*, 209-224. https://doi.org/10.1108/S2053-769720190000031014

Sabino, H., Almeida, R. V. S., Moraes, L. B. D., Silva, W. P. D., Malcher, C., Passos, F. G. O., Guerra, R., & Passos, D. (2022). A systematic literature review on the main factors for public acceptance of drones. *Technology in Society, 71,* Article 102097. https://doi.org/10.1016/j.techsoc.2022.102097

Sakiyama, M., Miethe, T. D., Lieberman, J. D., Heen, M. S. J., & Tuttle, O. (2017). Big hover or big brother? Public attitudes about drone usage in domestic policing activities. *Security Journal, 30,* 1027-1044. https://doi.org/10.1057/sj.2016.3

Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing and Health*, *33*(1), 77- 84. https://doi.org/10.1002/nur.20362

Saulnier, A., & Thompson, S. (2016). Police UAV use: Institutional realities and public perceptions. *Policing: An International Journal of Police Strategies and Management, 39*(4), 680-693. https://doi.org/10.1108/PIJPSM-11-2015-0136

Schlag, C. (2013). The new privacy battle: How the expanding use of drones continues to erode our concept of privacy and privacy rights. *Pittsburgh Journal of Technology Law & Policy*, *13*(2), 1-24. https://doi.org/10.5195/tlp.2013.123

Shaw, I. G. R. (2017). The great war of enclosure: Securing the skies. *Antipode, 49*(4), 883-906. https://doi.org/10.1111/anti.12309

Shear, M. D. & Schmidt, M. S. (2015). *White House Drone Crash Described as a U.S. Worker's Drunken Lark.* The New York Times. https://www.nytimes.com/2015/01/28/us/white-house-drone.html

Sifrer, J., Mesko, G., & Bren, M. (2015). Assessing validity of different legitimacy constructs applying structural equation modeling. In Mesko, G., & Tankebe, J (Eds.). (2015). *Trust and Legitimacy in Criminal Justice: European Perspectives* (161-187). Springer Cham. https://doi.org//10.1007/978-3-319-09813-5

Sound Media (n.d.). *Airborne Drone.* Public Domain Pictures. https://www.publicdomainpictures.net/en/view-image.php?image=421497&picture=airborne-drone

Thacher, D. (2019). Critic: The limits of procedural justice. In Weisburd, D., & Braga, A. A. (Eds.), *Police Innovation Contrasting Perspectives.* (95-118). Cambridge University Press. https://doi.org/10.1017/9781108278423.005

Thompson, G. (2020). Making the case for the UK's drone capability: Public relations as a carrier of strategic culture. *Corporate Communications: An International Journal. 25*(1), 20-33. https://doi.org/10.1108/CCIJ-07-2019-0090

Tyler, T. R. (2003). Procedural justice, legitimacy, and the effective rule of law. *Crime and Justice, 30,* 283-357. http://www.jstor.org/stable/1147701

Tyler, T. R., & Meares, T. L. (2019). Advocate: Procedural justice policing. In Weisburd, D., & Braga, A. A. (Eds.), *Police Innovation Contrasting Perspectives.* (71-94). Cambridge University Press. https://doi.org/10.1017/9781108278423.004

United States Air Force. (2007). *MQ-9 Reaper.* Flickr. https://www.flickr.com/photos/usairforce/7414675214/in/album-72157630223467322/

Waghorn, N. J. (2016). Watching the watchmen: Resisting drones and the "protestor panopticon". *Geographica Helvetica, 71,* 99-108. https://doi.org/10.5194/gh-71-99-2016

Appendix A – Ethics Approval

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

25 October 2022

Kirsten Hanna
Faculty of Culture and Society

Dear Kirsten

Re Ethics Application: **22/292 Hovering over the white picket fence: Assessing the potential impact of police drone surveillance on New Zealand's communities.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 25 October 2025.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.
8. AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Appendix B – Participant Information Sheet

Participant Information Sheet

Date Information Sheet Produced:

28 October 2022

Project Title

Hovering over the white picket fence: Assessing the potential impact of police drone surveillance on New Zealand's communities.

An Invitation

Greetings! My name is Nicholas Alexander Kochedov, an AUT student studying a master's degree in criminology and criminal justice. I am interested in finding out the opinions of Auckland community leaders on the potential use of drones by the Aotearoa/New Zealand police and would like to invite you on this journey as a participant. It should be noted that this research will contribute to my master's degree.

What is the purpose of this research?

The purpose of this research is to find out what community leaders think about drones being used by the Aotearoa/NZ police, especially for surveillance purposes. Overseas research shows that police in other countries are increasingly adopting drones for routine use, such as to prevent crime, perform search and rescue and respond to dangerous incidents. While there are beneficial uses of police drones, overseas, concerns have been raised regarding potential privacy and ethical issues.

There is very little research exploring how communities in Aotearoa/New Zealand view police use of drones. This research is therefore interested in finding out your views on this topic and the views of members of your community, if there has been any discussion about this within your community.

The findings of the study may be of interest to police to help inform their decision-making around the use of drones. The findings of this research may also be used for academic publications and presentations.

How was I identified and why am I being invited to participate in this research?

You were identified through public sources such as websites or through word of mouth as a community leader, someone holding a leadership position in a community organisation or being viewed as a community leader by virtue of your service, experience and wisdom. Details of this research may have been forwarded to you by someone you know, and as a result you have then contacted me. You are invited to participate in this research if you are over the age of 20 and residing within the Auckland area, while also being able to represent the interests of your community.

How do I agree to participate in this research?

If you agree to participate in this research and would like to move forward, that is great! Your time will be highly appreciated.

To agree to participate, please email me and then we will organize a date and time that is most suitable to you, and decide where we can meet to conduct an interview. You can also email me if you have any questions about the research. It is up to you to decide if you wish to go through with the interview; if you decide to do so, you will need to complete and sign a Consent Form before the interview.

Your participation in this research is completely voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

What will happen in this research?

You will be participating in an interview of up to 90 minutes, where I will ask you a series of questions on your views regarding drones and their use for policing, though it will be up to you if you wish to end earlier. Before the interview, I will send you a copy of the questions I will ask you. The interview can take place at a location that is

most suitable to you, such as a community venue or office space. During the interview, I will be taking down notes and, if you agree, making an audio recording of our conversation. You can decide not to answer any of the questions. After the interview is concluded, I will type up the interview and send you the transcript in case you would like to check or change it. Similarly, if you change your mind regarding your participation in the research, you will be able to withdraw at this point. If you would like, I can keep you updated via periodic emails on how the research is progressing after the interview. When the research is finalised, I will send you a two-to-three-page summary of the research findings.

What are the discomforts and risks?

I don't anticipate that you will experience any discomfort or risks as a result of taking part in this research. If you would like any cultural or other protocols to be observed during the interview, please just let me know. You can also pause or end the interview at any time.

What are the benefits?

There are several benefits of this research. By exploring the views of community leaders about police use of drones, including hopes and concerns, this research may help increase awareness of the potential implications of this technology for communities. It is my hope that the police may also take note of the research findings, which may influence their decision-making regarding the use of drones to ensure that they are adopted in ways that are acceptable to your community. If you were not previously aware of drone use by the police, I can share information on this with you. This research will also contribute to my university qualification and will help me obtain a master's degree. This will also help me increase my own understanding about the issues surrounding drone use by the police.

How will my privacy be protected?

Your privacy will be protected through confidentiality. Your identity will not be revealed in any publications that come out of the research, nor will I reveal the name of any other person you mention. You will be given a pseudonym that will be associated with your interview transcript, or you can choose one.

What are the costs of participating in this research?

The main cost of participation is your own time. You may have to spend up to three hours in total to participate in this research, spread over different days. This includes reading of the Information Sheet, completion of the Consent Form, the 90-minute interview, and subsequent review of the interview transcript.

What opportunity do I have to consider this invitation?

You can take four weeks to consider this invitation. Remember, participation is voluntary, and it is up to you if you want to be part of this research.

Will I receive feedback on the results of this research?

I will send you a two-to-three page summary of findings after the research has been finalised, which will include findings from other community leaders. You will also be able to access the full thesis if you so wish.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Kirsten Hanna, Kirsten.hanna@aut.ac.nz, 09-021-9999 x8308

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz* , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Nicholas Alexander Kochedov

Project Supervisor Contact Details:

Kirsten Hanna

Kirsten.hanna@aut.ac.nz

09-021-9999 x8308

Approved by the Auckland University of Technology Ethics Committee on 25/10/2022, AUTEC Reference number 22/292.

Appendix C – Consent Form

Consent Form

Project title: ***Hovering over the white picket fence: Assessing the potential impact of drone surveillance on New Zealand's communities.***

Project Supervisor: ***Kirsten Hanna***

Researcher: ***Nicholas Alexander Kochedov***

- ○ I have read and understood the information provided about this research project in the Information Sheet dated 28 October 2022.
- ○ I have had an opportunity to ask questions and to have them answered.
- ○ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ○ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- ○ I agree to take part in this research.
- ○ I wish to receive a summary of the research findings (please tick one): Yes○ No○
- ○ I wish to receive periodic updates by email on the progress of the research (please tick one): Yes○ No○

Participant's signature: .....

Participant's name: .....

Participant's Contact Details (if appropriate):

.....

.....

.....

.....

Date:

Approved by the Auckland University of Technology Ethics Committee on 25/10/2022 AUTEC Reference number 22/292

Appendix D – Interview Schedule

Interview Schedule

Introduction:

Introductory greetings (cultural protocols).

Provide a hardcopy of the drone use factsheet.

Do you have any final questions regarding the interview or the research itself?

Explanation and signing of consent form, along with audio recording of interview using two devices.

Section 1: Personal views of participant – Previous knowledge

What do you currently know about drones being used for policing?

- Are you aware of police use of drones overseas? – Here in Aotearoa New Zealand?
- What are your initial views about drones being used for policing?

Section 2: Personal views of participant – Drone use

What do you think about drones being used for search and rescue purposes in Auckland?

- What about drones being used, rather than patrol cars, to chase someone?
- What about helicopters being used for the same tasks?

What do you think about drones being used to patrol neighbourhoods and to search for crime in Auckland?

- Would you feel safer? – How come?
- What about helicopters being used for the same purpose?

Section 3: Personal views of participant – Issues with drone use

Do you have any concerns or issues with drones being used for policing in Auckland?

- Do you think there are privacy issues with that?
- What about CCTV or security cameras?

How do you think drones should be used for policing?

1

- Should drones be used primarily to respond to incidents rather than for routine patrols and surveillance?
- Should helicopters be used instead?
- Should resources be invested into drones?

What might help alleviate some of your concerns about drones being used for policing?

- Should there be consultation with communities before drones are used within those communities?
- Should there be a clear framework that outlines how drones and used and when?

Section 4: Community views

Has your community been previously consulted by police regarding the use of drones for policing?

- Should there be more/any consultation?

Do you know if your community shares any thoughts or opinions about drones being used for policing?

- Are there any concerns? Hopes?
- Why do they view them more negatively? More positively?
- How do they view CCTV/security cameras and helicopters?

What may help alleviate some of your community's concerns about drones being used for policing?

- Should drones be used primarily to respond to incidents rather than for routine patrols and surveillance?
- Should helicopters be used instead?
- Should resources be invested into drones?

Does your community have any thoughts on what can help alleviate some of the concerns?

Conclusion:

Are there any other things you'd like to add?

What will happen next.

Thank you for your time.

Appendix E – Fact Sheet

Drone Use Fact Sheet

Overseas Introduction:

- United States Customs and Border Patrol began using drones to patrol and monitor their borders around 2005.
- Between 2009 and 2017, over 347 law enforcement and emergency services (fire and rescue services) had purchased drones in the United States.
- A 2020 study saw an increase to 1,578 state and local police agencies operating drones in the United States.
- In the United Kingdom, Essex Police was the first agency to use drones in 2014.
- By 2019, 21 Police departments in the United Kingdom were routinely operating drones.

But why drones?

- Lower costs to buy and run drones compared to helicopters along with compact size.
- The initial cost of a police helicopter can be between $800,000 and $5,200,000 NZD.
- The cost of a police drone can be around $6,800 NZD.
- Generally able to do the same things that helicopters do and even more.
- Their main use revolves around an onboard camera for observation and surveillance.
- Very versatile and can be used in surveying of crime scenes, search and rescue, crowd management, routine patrols to prevent crime and even directly assisting during an arrest or chase.
- Some other additions can include GPS trackers, speed radars, licence plate readers and even monitoring of phone calls.

Domestic Scene:

- New Zealand Police already owns drones and has used them on several occasions.
- During a six-month period (November 2019 – June 2020) drones were flown 121 times.
- Uses include locating fleeing offenders, crime scene photography, photography of serious crashes and providing situational awareness during operations and incidents.
- These uses have been primarily 'reactive' as a response to an incident or crime, as opposed to being more 'proactive' such conducting general monitoring/observation or routine patrols to prevent or deter crime.
- A "Proof of Concept" report has found drones as being beneficial and useful, with a recommendation that each Police district could maintain up to six "Mavic 2" drones.