**Sarah Dickson-Johansen:** All right, kia ora, good afternoon everyone and welcome to the drones forum today. My name is Sarah Dickson-Johansen and I'm a policy analyst here at the Ministry of Transport working on drones.

Before I pass you on to Dean Winter for the formal opening, I will just briefly run through how this forum will operate this afternoon. I hope that you can all hear and see me. So due to the current COVID-19 alert levels we were unable to have people attend in person because of this we had to move everyone online and I'd just like to quickly thank those who are for the flexibility on. This change it’s pushed up capacity online meaning that we will not be able to have as interactive a forum as we'd initially planned now as we're using this live Microsoft teams function. It's purely a presentation. There is no chat function and you are not able to interact or interject with us. However, in place of this we will ask that you send any comments or questions through to the drone's email and we'll get back to you over the next few days.

Now without further ado I will pass you on to Dean who will formally start the forum, thanks.

**Dean Winter:** Kia ora, everybody. Ko Dean Winter tōku ingoa. I'm currently the deputy chief executive for aviation safety with the Civil Aviation Authority.

A big welcome and thanks very much for everybody for coming online and spending the time. I know we've got a wide range and quite a few participants out there so we appreciate that everybody's taking the time to come in and listen. We're here because drones are playing an increasingly important part in the aviation landscape and that's a landscape where everybody has a part in keeping people safe. It's seen a huge increase in both the recreational and commercial drone usage and that coincides with an increase in technology in the same space. For the Civil Aviation Authority as a regulator understanding the participants of any sector is vital. The more we know the better chance we have of achieving our collective goal of safe and secure skies. And this is for all users. So from users of drones themselves to the people out there, to a passenger boarding an international flight, to someone being transported to hospital in the helicopter, to someone in a park or sporting event where drones are being used. We work in a reasonably closed aviation environment which in the past has been used to largely knowing the participants that we deal. With the drone space is one area where there's an increasingly unknown amount of pilots each subject to civil aviation rules and not all of them knowing that that's the case.

Understanding enough about the sector that we regulate in order to work with participants is vital and as a risk-based regulator it's very important for us to know where we need to apply our resource. I'd say work with because we're lucky enough to be a regulator in a sector that we all want the same thing – we all want safe skies. That's why it's so important for us to first and foremost recognize the fact that we have the same goal. We're all working in the same system but we all want the same thing and I expect that everybody on the call today would agree and want the same thing as us. The more we know the more we can utilize what is as a regulator our most powerful and important tool which is education because a significant portion of users in the drone space have little or in some cases no barriers of entry compared to other users such as pilots, agricultural operators, adventure aviators, and education is even more important for us.

So for us today it's about educating drone users letting them know that they are pilots. They're subject to rules which are designed to keep the aviation system of which they play an important part safe. What the research has highlighted for us gaps in understanding and knowledge and this is where we can best apply our resource to educate drone users about sharing the skies. Hence launching a few weeks ago as sharing the skies campaign in line with the research from Colmar Brunton. So I'm very grateful that they're here today to be able to take us through the results of their research. So I'm going to hand you over very shortly to Michael Dunne and Nicky Ryan-Hughes who are going to talk for about 40 minutes presenting the findings and then answer some pre-sent in questions for the half hour or so after that. And then Kirstie Hewlett, deputy chief executive for regulatory and data with the Ministry of Transport, is going to make some closing statements again thank you very much and I do invite anybody who has any uh comments or questions they can contact me direct to the Civil Aviation Authority. Cheers.

**Michael Dunne:** Hi everybody. I'm Michael Dunne from Colmar Brunton in Wellington. I worked with my colleague Nicky to conduct this research and produce the results. So to start with, what we're going to do is we're going to have a look at why we did the research and then how it was done before we actually get into the findings. So why we did the research, well Civil Aviation, MoT and MBIE felt there was a gap in knowledge with how drones were being used in New Zealand and how many drones there were. So with this bit of research we were aiming to achieve the things on the right hand side of the slide there. So understanding the incidence of recreational commercial drone use in New Zealand the number of types of drones being used, how those drones are being used, what potential future uses people are want to use drones for knowledge attitudes about drones and problems encountered around drone use and what if any action is taken when somebody encounters a problem.

The research consisted of looking at three different groups of people so we've got the New Zealand-based recreational drone users – these are people who have flown a drone for a recreational purpose in the last six months even if it's just once, so it's anybody over 15 who has flown a drone in the last six months for a recreational purpose. Now we had three uh two different sources of people for this particular group so we did a sample of Colmar Brunton's research panel and we also had a open survey where members of model flying New Zealand and also AirShare were invited to take part and those invitations were sent out via Civil Aviation.

Now a second group are New Zealand-based commercial drone users aged 15 and over. These are people who fly drones for commercial or scientific purposes or involved in the decision making for the organization about drones. When we were looking through the questions it seems to some people thought this definition was a little bit narrower than it actually is so we looked at a very broad definition of commercial users. So for us a commercial user is anybody or any organization that is using a drone in the course of their business, so that might be a teacher who is flying a drone over a sports event filming that event or it might be a real estate agent who's taking some photos of a house or it might be an accommodation provider who is taking some photos of their accommodation so those photos can appear on their website. So it's a very broad definition it's not just those people who are making money out of the operation of a drone and we had three different sources of the commercial drone users.

We did a telephone survey, so a random sample of New Zealand businesses and we asked people whether they used a drone or not. We had a an online sample using our business research panel and again we had that open link that was sent to members of model flying New Zealand and AirShare users and the third and final group are our non-drone users so these are people who haven't used a drone in the last six months and these people were sourced from Colmar Brunton's research panel.

On this slide this is the definition that we showed to people of drones and the online questionnaires. So we want to make sure everybody was thinking about the same thing when we were talking about drones so this is the definition we showed people small powered aircraft that are remotely controlled by somebody on the ground so that ranges from larger aircraft model aircraft that you can see on the left to the teeny tiny little handheld one in the middle so it's a big range of aircraft.

This isn't the first survey we've conducted about drones. We actually did one in 2017 for Civil Aviation. This was quite different to the current one and on this table what we've done is we've looked at what the differences are between the two so the primary focus of the two was quite different so the 2017 one included overseas recreational users whereas the 2019-2020 the current one there we have just focused on New Zealand-based users but we've included commercial users.

The drone user definition was quite different so in the latest one it's people have flown a drone in the last six months the previous one was fly or owner drone but no time frame was specified 2017 we projected the number of users based on those who fly or own a drone and we didn't specify a time frame. What we've tried to do in the 2020 report as if you've looked at the appendix there is a comparison between the number of users on a like by like basis between the two surveys or as close as we can get it 2019-2020 the projected number of users was based for the recreational users was based on the percentage of flow in a drone more than once in the last six months and we've projected that to the census population aged 5 to 74. And one of the questions we will answer in the second part of the presentation directly asks why that 74 limit and so I'll address that at that stage commercial an organization has flown a drone within the last six months projected to the number of enterprises in New Zealand in 2019 and that excludes property operators so that is the likes of landlords and then the projected number of drones and this bit of research recreational is projected based on household ownership and commercial is based on enterprises or businesses and in 2017 we asked the question but we didn't report on it because we only used it as a profiling variable.

So that is a bit of a rundown on why and how we did the research now we'll get into some of the results and also a bit more of the how we got to the results so we'll start with incidents of drone use in New Zealand

So we used um our panel survey our Colmar Brunton and research panel survey to work out how many New Zealanders have used a drone for recreational purposes in the last six months on the next slide I'll go into exactly how that was done.

But for now we estimate there's 271 121 New Zealanders who have used a drone solely or mainly for recreational purposes in the last six months and there are 156 610 drones used mainly for recreational purposes. Now amongst those recreational users the highest incidence was men 30-39 and amongst drones themselves more than half are the very small drones weighing less than 500 grams.

And you'll see there that there are more drone users than there are drones that's because people say within a household or even friends are sharing drones because we have quite a broad definition of who a drone user is. So it's that twice in the last six months so how did we calculate the number of drone users and drones in New Zealand. Uh there was quite a bit of interest in this in the questions uh so I'm going to go into this in a little bit of depth and I apologize because I think it's probably a little bit dull but I'll go through it anyway since there were so many questions asking how we did this. What we did to start with is we took a demographic sample of our demographically representative sample from our research panel of New Zealanders. So we structured that sample to be represented by age gender region ethnicity and household income we then invited them to take part in an online survey and we asked them a whole bunch of questions to work out whether they had used a drone in the last six months.

Then the proportion that we identified in that survey we then multiplied that up by the number of New Zealanders aged 15 to 74 in the population so 15 to 74. The 15 is because we didn't interview anybody under 15. The 74 was because in that initial sample there was nobody who was over the age of 75 who flew a drone that's not to say that within the survey that there aren't drone users who are over 75 they definitely are and if you look at the age profile you'll see that there are a lot of relatively high incidence of drone users who are over the age of 60 but just in that initial sample we work out how many people who are using drones it was just um within that age group then to work out how many people who were under 15 who were using drones as we asked people in the survey is there anybody in your household who's under 15 who's also used a drone in the last six months and then we divided that by the total number of people in their households who are under 15 to work out what proportion of the population under 15 are using a drone and then we multiplied that by the total population and that age group to give a total number of child users and we had a I cut off at the bottom there of five because we needed some age group where is not going to be cognitively able to operate a drone

Then when it comes to working out how many recreational drones there are that was simpler so we took that information that we already had and we asked them how many drones their household owns

We then took the average number of drones owned and flown in the last six months removed any outliers using the interquartile range method which you can google if you're interested in that method and then we divided the population up in four different categories and then worked out how many people in each of those four categories or how many households in each of those four categories fly a drone if you're wondering why we divide the population up into those four household types as your drone incidence differs by those household types we want to make it as accurate as we could

Hopefully I haven't put too many people to sleep with that that very long explanation so if we turn now to commercial users now remember this is a very broad definition of commercial use including anybody who has used a drone in their business in the last six months so we think there are nearly 8 000 New Zealand businesses organizations who've used a drone in the last six months and within those businesses there are nearly 21 000 New Zealanders who've used a drone and the number of drones they're using is 15 322.

Again, I've included how we calculated the number of drone users because there was some interest in that what we did uh in terms of character in a number of organizations is we got a sample of New Zealand organizations from Equifax who are a business supplier now this is not a sample of drone users this is a sample of all New Zealand businesses because what we're trying to work out is what the incidence is in the population so our telephone interviewers called 1 690 of the organizations on the list and asked them questions to determine whether anyone in their organization had used a drone in the last six months then we divided those 1 690 organizations into 39 separate groups that we created based on industry type and number of employees the reason we did this is that initial sample was not representative of the population by industry or by business size so whenever you're doing a survey of businesses in New Zealand it's always it's a bit tricky because if you sample by business size then you are oversight you're getting a lot of very small businesses and you don't have enough in the large business category or if you're in if you sample by number of employees you end up with a lot of businesses in the very large category not very many in the small category so we overcame that by doing a mixed sampling approach and the way we brought that back to population was to create those 39 categories and then work out the incidents in each of those categories separately and then we brought those all back then we projected each of the individual categories to the population and then we brought them all back together to produce a total number of organizations using a drone in New Zealand.

And then the commercial drone user calculation was quite simple very similar to the recreational users so we ask people how many people in the organization use the drone and then the number and we also ask them the number of commercial drones or drones that we use mainly for commercial purposes were in their organization in the last six months to give us the total number of drawings okay so let's have a look at some more results this is the incidence of drone use by organization so it's a percentage and does not reflect the size of each of the industries uh we'll see we'll factor that in in the next slide. So you'll see here the information media and telecommunication companies five percent of those have used a drone in the last six months

Um 3.5 percent of public administration training and education organizations have used a drone in the last six months

I think it might be helpful just to give you a flavour of who these drone users are.

Just by describing some of the typical people who completed the survey so say within the agriculture and forestry category that might be a farmer or a horticulturist who's flying over their herd or their crop just to check what it's like or where they are

The public administration training and education group that is quite often teachers who are using the drones uh within their school premises it might be the sports event or it might be some kind of outdoor event the retail wholesale accommodation and food services a typical person there might be an accommodation provider who's using photos from the drone of their premises that they can put on their website your professional scientific and technical services that's where your photographers sit and so there's a lot of professional photographers who are using drones construction we had quite a few builders who were using drones to fly over the buildings that they were building particularly residential buildings just to check the quality of what was happening

Electricity gas and water now that is a very small sector in terms of number of businesses but they were doing things like flying drones to check electricity lines that kind of thing your information media and telecommunications companies they included the likes of advertising agencies who are using drones to take photos for ads your rental hire in real estate companies then that is your real estate agents typically and they are using drones to take photos of households okay so that's the incidence within each of those industries.

Now if we factor in the size of each of those industries that's in this chart and you can see here that the numbers do change around a bit for instance because we have so many people in the agriculture and forestry sector um while it's only a small percentage of the total they're actually one of the larger groups when you look at it in terms of pure number of businesses I won't dwell on that.

We ask people the commercial operators whether they were flying under part 101 or part 102 rules most said part 101 rules very few said part 102 rules only there were a few people who didn't know and there were some people who said both now what we saw later on in the survey is people did get confused about the rules they were flying under so not all of the commercial operators because we've got such a broad definition understood the rules that they were flying under

Okay so where are drones being used in New Zealand?

The recreational users are typically flying over their own home or backyard so we've got nearly 50 of the last flight over their own home or backyard and we've got a few over the beach or a neighbourhood park nature reserves or a national park that kind of thing.

We also asked people what suburbs they had flown over on the last couple of flights and the way we did this is we used statistical area 2 from statistics New Zealand so they're all named suburbs in quite small numbers so when you think typically of a suburb these are smaller but the names they've used make sense to people. And then we took where people said they'd fly and we overlaid the AirShare airspace map to work out whether people are flying where they should be or potentially where they shouldn't be and in the report we refer to this as flying and restricted airspace which we did not intend to be a pejorative term um merely we were trying to find a term that kind of encompassed all of the different areas that we had included just to give you an idea on this next slide. So based on that analysis where we overlaid the airspace map with where people said they flew we've got nearly a quarter of people so 24 percent who potentially flew and restricted airspace so what we've termed restricted space and for that that means they need to have flown in one of the following areas: a low flying zone, a military operating area, within four kilometres of aerodrome, other authorities area’s control zones, and no-fly zones And they also needed to have flowing unshielded and not got permission so even with all of that we've also referred to this as they may have flown in restricted airspace. And that's because sometimes people make mistakes with um suburbs and so there might have been a little bit of misreporting there but we think this is a pretty good indication of where people are flying.

And you'll see there that we've got a distribution by age and gender just so you can compare who's slightly more likely to be flying in that restricted airspace and who's not so you can see that males 15 to 29 there's slightly higher incidence amongst those who are flying in restricted airspace unsure without permission versus those not. So our commercial users where are they flying so you'll remember in the last slide that we had nearly half of the recreational users flying over their own backyard it's only a quarter of commercial users. Also got quite a few commercial users flying over residential areas farmland and industrial areas and we did the same analysis with the airspace map and the suburbs that we did for the recreational users and you can see there that potentially 21 have flown and restricted airspace on their last couple of flights.

Now I'll hand over to my colleague Nicky we'll take you through the rest of the presentation.

**Nicky Ryan Hughes:** 63 of commercial users plan to change how they use drones in future just one percent of them plan to stop and the main reason for that is cost around four and ten intend to use drones more and three and ten will use drones for new or different purposes.

And when we looked at what those new or different purposes were it's clear that they're new or different to the business rather than being innovative users

The main ones relate to the primary industries and for example spraying crops or monitoring stock but also mapping and surveying a common.

We ask commercial users who plan to continue using drones what thing one thing could be done to make it easier for the business to do so. And this was an open-ended question where people could provide the answers using their own words and as you can see there are a wide range of responses. Um but we've grouped these into themes and the main ones um are changes to the rules and regulations especially simple simplification and clarification of the rules but better training equipment and information would also help.

And here are some examples of their comments and I'll just read out one from each of the main themes remove the blanket landowner permissions rule and replace it with a rule that requires permission for flights over active dwellings active worksites or active livestock use setting up a training program to train operators is we currently only have a few people who can fly them make AirShare live with everyone's drone flights so everyone can see what everyone else is doing where and when all three groups of respondents were asked how much they know about the rules and regulations for flying a drone in New Zealand most non-users say they aren't aware of the rules and one in three recreational users say they don't know the rules either while most commercial users say they have at least a basic understanding not all do and this suggests that more education is needed across the board.

To delve a little deeper into recreational users perceptions of the rules for each one we plotted the percentage that know the rule against the percentage that think the rule is reasonable and this identified that the least well-known and least reasonable rule is the one about not being able to fly over a national park.

Rules that have a clear safety implication are considered the most reasonable overall for example not flying near an aerodrome there's less agreement that the line of sight rule and height rule and needing permissions before flying over someone's property are reasonable.

Recreational users in non-used lists were showing this simplified list of rules which is in line with how Civil Aviation Authority communicate them when we compare the proportion of recreational users that think each rule is reasonable to the proportion of non-users that feel that way you can see that generally the non-users are more likely to find the rules reasonable particularly the line of sight rule not being able to fly over someone's property without permission in the height restriction rule we showed all three groups uh four potential new rules and asked whether or not they were in favour of each non-users are generally more in favour of them than the recreational users most people overall are in favour of geo-fencing less than half of the recreational users are in favour of compulsory training but the other two groups more of them are.

We also gave non-users and recreational users the opportunity to suggest any other changes to the rules and their own words and the examples given tend to fall into two camps either stricter rules or more relaxed rules and the non-users were more inclined to want stricter rules and the recreational users were more inclined to want them relaxed I'll read out two of the comments which demonstrate different perspectives around the same topic drone use needs to be regulated more seriously especially near people's homes and on other private property drones really need to be operated by someone who has a licence and there needs to be a way to track a drone that is an east in the airspace however the main issue for me is privacy breaches and then here's a comment from a drone user there should be a differentiation in rules for model aircraft flown by members of a club versus a shop bought drone that becomes an intrusion on privacy in an annoyance to the public.

Non-users were asked whether they generally have a positive or a negative view about how drones are being operated in New Zealand and they're more likely to have a positive than a negative view overall. Other questions we asked revealed there's widespread support for drones being used for things like search and rescue and emergency services and basically any task that would otherwise be dangerous or difficult for humans to complete themselves. Even some of the more futuristic uses like drone taxis and deliveries at this early stage we found there is already some level of openness to these among the public non-users view of views of drones are mainly impacted by what they see in the media – not what they personally see or experience in their lives. This stuff doesn't differ between those who have a positive or negative view about how drones are being operated here in New Zealand

And lastly there's quite a lot on this chart but the general finding is that non-users feel more concerned about recreational than commercial drone use in terms of the risk post to their safety and the impact on their privacy

**Sarah Dickson-Johansen:** Okay so first question: Does the estimated number of people who have used a drone in the last six months include people who have happened to have a go on their mates drone but are not recreational users they do we needed to well

**Michael Dunne:** If it's only a single use then the answer is no they're not included in that 2 000 um sorry that 271 000 but if they've had two goes on their mates drone then they are included and the reason for that is we need to draw the line somewhere so it's whether it's a single go two goes or um somebody's used a drone 20 times when defining it we had to draw the line somewhere.

**Sarah Dickson-Johansen**: Yeah so next question how does Colmar Brunton state that the number of those aged over 75 was negligible and therefore not projected in the results?

**Michael Dunne**: For this one I definitely stress that there are people over 75 in the survey and their results count just as much as everybody else but in terms of the projection which was based on that initial sample from the coma Brunton research panel that I outlined earlier in that sample there was nobody who was over 75 who owned a drone and had used it in the last six months so when we were rejecting using those results to project to the population we didn't want to over estimate the numbers by including a portion of the population that we hadn't observed that characteristic we were looking for so there are over 75 so um so it is projected predicted that 200 000 71 121 or sorry approach that number um 271 121 New Zealanders have used a drone mainly for recreational purposes in the past six months.

**Sarah Dickson-Johansen**: What are the error bounds around this estimate?

**Michael Dunne:** We could have rounded it to make it easier to say sorry yeah I know at a population level the margin of error on that figure is plus or minus 1.44 which in practical terms means that we're 95 confident that the true number of recreational users lies between six 211 eighty to three hundred and twenty nine eight twenty seven

**Sarah Dickson-Johansen**: Um page 24 of the report states that 73 New Zealand commercial drone New Zealand's commercial drone fleet is manufactured by DJI however 49 of the fleet features geofencing as a technology. How do you explain that?

**Michael Dunne**: The way we asked the question was which of these features does your drone have now? The fact that 51 percent of people said that 51 percent of people didn't select geofencing doesn't mean that 51 of drones don't have geofencing it means that 51 percent of drones either don't have geofencing or the user does not know. And we've seen throughout the survey that there wasn't a brilliant knowledge of the rules or knowledge of the features that the drones have and the more somebody used a drone then the greater the knowledge of their rules tended to be and also the greater the knowledge of their drone.

**Sarah Dickson-Johansen:** That's fair. Um okay so could you please explain why no sources of hard data were used to generate the results or even as a sanity check? Why were there no subject matter experts or third parties consulted in this construction of the survey or the questions asked in it?

**Michael Dunne:** So when it comes to the hard data we've been talking to a couple of industry players to try and calibrate what we're seeing in the survey with their data. One of those industry players thinks the numbers are about right the other one thinks it might be an overestimate. But the main reason that we haven't relied on that hard data in any way is that data can't be published that that is being shared with us on a confidential basis. We can't even say who we've been talking to so the whole purpose of doing a survey is we can publish the survey results to give us an estimate.

**Sarah Dickson-Johansen:** Questions c4 options 1 2 5 and 8 are all possible to answer either true or false correctly or incorrectly under the provision stated and under the part 101 rules. Was this factored into the results?

**Michael Dunne:** The way we set up those questions was to try and reflect how civil aviation communicates those rules to the broader public which is um a simplified version of the actual rule so I can give you a couple of examples here one of the rules under question is we stated in the survey you can't fly above 120 meters brackets 400 feet now in Civil Aviation’s ‘Fly the Right Way’ brochure that's stated as fly no higher than 120 meters 400 feet above ground level and only in daylight avoiding cloud or fog. So it's the way we stated the rules is fairly close to the way Civil Aviation described them to the general public. I'd also add with this that we think based on the survey responses that the respondents understood that we were talking about the rules in general because what we saw is again the more somebody had been flying a drone or the more they knew about drones the more likely they were to answer correctly. So we've got a question in the survey which was do who do you fly with. And one of those groups was flying within a club or an association. And those people in particular did very well on the rules so we think the intent worked quite well and the intent was just to get a broad understanding so we can understand how people with people have a broad understanding of the rules and whether they're operating in that the right way rather than all the ins and outs yeah specific detail.

**Sarah Dickson-Johansen**: Cool um so slide 24 summarizes the make model and capabilities of commercial drones 91 of drones are stated as having camera which implies that nine percent do not furthermore 67 are stated as having GPS glo nass which implies 33 do not. Do these figures give CAA any concern that the data might be right not be credible?

**Michael Dunne**: I think this the answer to this is similar to the earlier answer this is where people don't know the capability of the drone so there was a high proportion this these figures are from the commercial operators sorry the commercial users uh the commercial users so for instance the um the farmer or the teacher definitely did not have a great knowledge of their drone as a what I think of as a commercial operator so somebody making money from operating the drone by charging somebody else. So it just means that. It doesn't mean that the drone doesn't have it. It means that they either it doesn't have it or they don't know.

**Sarah Dickson-Johansen:** okay um so the survey data includes data from 1038 people who have not operated a RPAS or have any training or perceivable knowledge about the subject. Why was this?

**Michael Dunne:** We want to get a sense of what non-users thought as well as the users. So to get a total population level understanding of people's attitudes towards drones yeah and this was um kind of important too for us from our side of things just to understand what that sort of social acceptance is at the moment for drones. So the rules state in question c5 oh sorry the rules stated in question c5 are wrong and that they are incomplete asking whether a rule is reasonable is invalid if the rules are as wrongly stated was this factored into the results similar to my earlier answer. It's not factored into the results but the intent was to get a broad understanding of the rules not the um all the details or the all the exclusions that might apply for a rule so I don't think, I don't think that calls into account whether um asking that rule is reasonable or not is relevant.

**Sarah Dickson-Johansen:** Were there any reasonable reeves reasonableness check performed on the estimated number of commercial organizations using drones for business and scientific purposes?

**Michael Dunne:** We have talked to those two industry players I mentioned earlier so that was one check we also went through the data very thoroughly to make sure that people who said they were using drones were actually using drones and then the other one I would mention with this is the survey definition of who a commercial user is is much broader than I think the person who asked that question was thinking about, so it includes those school teachers, it includes the real estate agents, it includes the farmers and the horticulturalists and professional photographers.

**Sarah Dickson-Johansen:** Regarding slide 16 it is unlikely that an organization has gone to the effort of becoming a part 102 would operate under part 101 as well?

**Michael Dunne:** I think some of the people who might have selected part 101 and part 102 may have been thinking to themselves oh or I use the drone for commercial purposes again coming back to the somebody who's not using it that often um I'm not sure what I should be what rules I should be flying under I'm going to select both of those so I don't think it calls in to account the accuracy of the data I think it just reminds us that a lot of people don't know the rules yeah understandable.

**Sarah Dickson-Johansen:** Why is restricted airspace being confused with control zones and other types of special use airspace was this a decision to use the term restricted airspace rather than using a more neutral term that describes the category of airspace more honestly?

**Michael Dunne:** The decision to use restricted airspace was completely ours. So Colmar Brunton's. We thought it was a neutral term. We didn't mean it in a negative sense we thought briefly about using controlled and uncontrolled airspace um but we thought that might get confused with control zone because our definition has set out in the reports much broader than just a control zone and also if we're referring to uncontrolled airspace we're also concerned that maybe if the general public sees the report that they're going to become concerned that there's uncontrolled airspace in New Zealand and become worried so we chose it because we thought it was neutral um it turns out it wasn't intuitive always that way but that's that was the intent yeah that's understandable uh regret regarding proposed policies was there any consideration given to asking whether the response would have been the same if the option was of no effect or partially effective if these questions were not asked why what does this imply about bias and the survey outcomes um that wasn't considered I don't think it implies bias though to figure out whether people think a policy will work or not it was more we were just interested in whether people were broadly in favour of these or not I think figuring out whether they would work would be further down the track yeah that makes sense.

**Sarah Dickson-Johansen:** That's a big question uh when looking at the type of airspace that recreational and commercial users flew in there are superficial differences between commercial and recreational users the headline of the relevant slides is that more than one in five recreational flights and one in five commercial flights their respective numbers are 21 and 23 are these different statistics are these difference is this different statistically oh is this difference statistically significant uh do they do the differences in terminology justify the difference in the slide title um I think it might be 21 and 24 percent?

**Michael Dunne**: I think right memory um I'd need to go back and check that but this that's just what our convention is in research when referring to results and given that they're on two separate slides we didn't look to see whether they were significantly different or not um I don't think they are but it's more it's just one is closer to 25 and the other one is closer to um 20 so that's just a research convention

**Sarah Dickson-Johansen:** Okay all right uh, why were commercial drone users excluded from analysis on slides 50-53?

**Michael Dunne:** So those slides were feelings of recreational and non-users because of we were trying to keep our questionnaires under a certain length we couldn't ask all the questions for the people yeah so we had to make some trade-offs about what questions we asked of each group and we had to prioritize them and so we didn't ask those questions commercial drone users sure um how long was the survey and then the I think it was about 15 minutes I would need to look that up not aware um so it is interesting to see that one of the most commercially used DJI s series of the larger RPAS is missed from your survey altogether it is also interesting to note that free fly being the world leader in TV and film is also missing from this category and yet consumer models like GoPro have made the selection

What's on they report is the more frequently occurring models and there's a big category called other so the DJI s-series is definitely in the other category because there weren't that many of them free fly I think I remember also being in that category I'm not 100 sure um and the reason that the likes of GoPro have made this selection is because we have that broad definition of who a commercial user is okay

**Sarah Dickson-Johansen**: Why was the potentially inaccurate AirShare website used to classify airspace rather than a visual navigation chart?

**Michael Dunne:** The reason we chose AirShare was we wanted to use the airspace that most drone users were being directed to so Civil Aviation directs people to AirShare and I believe it is as up-to-date as possible. I think it's a good reflection and we actually did that same analysis on the um the more official map and it didn't really change the percentages very much at all yeah I guess it's um also an app that a lot of people so recreational users use stuff so yeah it makes sense.

Sarah Dickson-Johansen: Right um this is our final question so uh small and cheap are no relevance to safety at all an 89 dollar RPAS that collides with manned aviation will have the same outcome as a four thousand dollar RPAS of the same mess what's your answer.

**Michael Dunne:** The only reason we profiled the size and the make of drone and what it cost is just out of interest to understand the New Zealand drone market and what's operating. There is no statement about the relationship between size and cost and the safety and how safely it's operated sure or the potential risk of course.

Sarah Dickson-Johansen: Awesome. Right well that brings us to the end of the questions. I will move on to uh Kirstie Hewlett who will give us a bit of a government update. um I will change the slides over okay.

**Kirstie Hewlett:** Tēnā koutou katoa. For some of you that don't know me um I'm Kirstie Hewlett and I'm the deputy chief executive for system and regulatory design at the Ministry of Transport. I'm also the chair for the government's cross-agency work on drones.

First I just want to acknowledge Michael and Nicky and thank them for presenting the findings today. It was a very interesting presentation and I'm pleased to see the level of interest in the survey and great to see so many people online today. I hope you all found it informative and we answered all of the questions you might have had. I also we also just wanted to appreciate the flexibility you've shown given the COVID environment and participating by webinar today. As Dean mentioned the survey was commissioned to increase our understanding of the drone environment in New Zealand. Gathering evidence and reliable data relating to drone use is particularly difficult at the moment – particularly given the absence of systems we have for collecting data directly from the source. This survey gives us a much better idea of who and what is flying, why they are flying, and how they are using drones, and what the general public thinks about drones. We acknowledge that these results don't tell us everything and like every survey it has some limitations. But the survey does give us really good data to build our understanding on the size and complexity of the sector and the public's perception of drones. We'll take the results of the survey and we'll combine it with any other data sets we have on drones like the administrative data we get from the CAA, Airways, Statistics New Zealand and industry. And we'll pull that together to inform all of our ongoing work streams.

The government is committed to enabling a thriving and innovative drone sector in New Zealand which interfaces and works well with our current aviation sector. We see drones as an enabling technology which can help with productivity across the economy. This is more than more important than ever given the economic challenges that we're all facing now and over the next few years. So this survey is another step towards better understanding on what we need to do to capture the benefits of drones in New Zealand. And in the in light of that my job is to give you an update on the cross government work program and touch on how this survey will be used in the context of that work.

So, first of all with the Ministry of Transport we have been busy progressing our review of the current regulatory framework applicable to drone operations. So late last year we engaged with key stakeholders to test our early thinking on possible regulatory options around things like registration, pilot competency and remote identification. The responses we see received from people were largely positive and the feedback's been taken into account for our ongoing policy development. So the work we're doing now is to take the initial work that was done and the engagement and take this a step further looking at the detail around a compulsory drone registration or notification, qualification, and testing for part 101 pilots and technical requirements around remote identification and geo awareness.

The review will also look at a range of general rule updates such as looking at potential changes to the consent provisions the – not just the engagement to date but other data. And then this survey has helped us to better understand behavioural patterns of users in the public and what drones are used for and what could actually work in a legal regulatory and technical sense what we're hoping to do is to plan or pull all of this work together into a detailed discussion document which depending on the election we're hoping to release at the end of this year for a much more detailed and comprehensive discussion of the issues while we're doing that work we've also been undertaking in parallel a bit of a look at unmanned aircraft traffic management UTM as a potential solution for drone integration this is still in a very early stage and we're focused on really understanding what the key components of a UTM system would look like and how can UTM contribute to the safe integration of drones we are also looking at what the key government objectives or principles should be for underpinning the system and the role different government entities in the private sector organizations should play in developing and implementing a UTM we're undertaking a bit of preliminary engagement with agencies and key aviation partners on this at the moment to come to a clear view on where to start and how to take this work forward again some of the data that you heard in the survey today will help us better understand the size and characteristics of the drone sector in New Zealand and what this means for the needs of a UTM system.

The CAA has of course been helping us with most of the work that I talked about before but has also launched its new safety campaign share the skies last week. This is a new education initiative focused on safe drone use under the existing rules this survey has been critical to informing the demographic targeting of this campaign and the messages in it. The Ministry of Business Innovation and Employment has also been leading its airspace integration trials program or AITP this program has a vision to make New Zealand the location of choice for the safe development testing and market validation of advanced drones and adjacent technologies as such again the information presented around commercial drone use in particular will be of interest to MBIE. We think the data clearly indicates the importance that commercial operators particularly those plane under part 102 rules place on the contribution drones make to their profitability and productivity.

The survey information showing how in the future businesses plan to use drones across a range of use cases allows MBIE to consider whether where to best focus its r d support and efforts to maximize the benefits of developing the drone industry. MBIE understands that public knowledge off and attitudes towards drone usage as a key enabler to increasing public acceptance of drones. These findings allow us to better understand current public perceptions and which medians have the most influence on changing and working with these perceptions this will hopefully mean that MBIE and the AITP can better communicate drone related information to the public and subsequently support the development of New Zealand's drone industry.

You would have also seen earlier in the year that the government announced its partnership with Wisk as part of the airspace integration trials program they are the first member of this program and you'll see other partners um to be announced soon.

So finally, if you've got remaining questions or comments either on the quick very quick update I just gave or the survey please feel free to send these through to the drone's email address at the Ministry of Transport and once again I just like to thank Colmar Brunton for their work on the survey and the presentation and I'd like to stand my thanks to other agencies for being present today and helping answer some of the questions finally thank you all for your participation I hope the survey will also be useful for you as much as it is for us. Hei konei rā.