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# **Public Opinion Research Study on Drone Users' Familiarity with the New Rules & the General Public's Social Acceptance of Drones**

## **Executive Summary**

**Prepared for Transport Canada**

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**Ce rapport est aussi disponible en français**

This public opinion research report presents the results of an online survey conducted by Léger Marketing Inc. on behalf of Transport Canada. The quantitative portion of the research study was conducted with 2,703 Canadians between January 11 and January 31, 2021. The qualitative portion of the research study was conducted with 55 Canadians between February 23 and March 2, 2021.

Cette publication est aussi disponible en français sous le titre *Étude d'opinion publique sur la familiarité des utilisateurs de drones avec les nouvelles règles et l'acceptation sociale des drones par le grand public.*

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# Executive Summary

Leger is pleased to present Transport Canada with this report on findings from a quantitative survey and qualitative Bulletin Boards designed to learn about Canadians drone users and the general public. This report was prepared by Léger Marketing Inc. who was contracted by Transport Canada (contract number T8053-200054/001/CY awarded November 16, 2020).

## 1.1 Background and Objectives

Regulations surrounding the use of drones in Canada have evolved rapidly in recent years. As a matter of fact, the drone industry is contributing to the Canadian economy in many high-value domains, such as precision agriculture and package delivery. Regulations enable the growth of emerging industries by creating a predictable framework in which to operate. At the same time, they aim to address the safety concerns associated with the integration of an emerging technology into Canadian airspace. To keep up with these changes more information is needed on drone users, the general population and their respective level of knowledge about drones and associated regulations. There is also a need to assess the level of social acceptance of the use of drones in the society.

Transport Canada (TC) has observed an increasing trend in the number of reported drone incidents since 2014. Without concluding that Canadians are no longer operating their drones safely, which could be circumstantial, Transport Canada needs a better understanding of the level of awareness and knowledge of the regulations among users and the general population. The results of this study will allow Transport Canada to inform its communication strategies with Canadians about drones.

This study was done through a mixed qualitative and quantitative study.

For each of the study's target groups, the general objectives of the study are as follows:

### Drone Users

- Creating a user profile with demographics (age, gender, geolocation, income, education)
- Identifying behaviours (flying frequency, safety features used, commercial or personal usage, awareness of rules)
- Identify purchasing habits (number of drones owned, brand or home build, and year of purchase)
- Identifying sources of information on drones and the new rules
- Measuring registration rate
- Measuring pilot certification rate

### General population:

- Profile the sample with demographics (age, gender, geolocation, income, education)
- Measuring the opinion about drones and their perception
- Measuring the level of comfort with drones flying in their vicinity
- Measuring the level of comfort with drones in various situations (e.g. delivering a package, home security)
- Assessing the government role as a regulator
- Measuring the awareness of drone regulations
- Identifying opinion about drone in general, drone regulation and future use of drones
- Other related factors such as safety

## 1.2 Methodology

### Quantitative Research – Online Survey

This public opinion research was conducted via online surveys, using Computer Aided Web Interviewing (CAWI) technology. Fieldwork for the survey was carried out from January 11, 2021 to January 31, 2021. A total of 2,703 Canadians were interviewed, 701 drone users and 2,002 non-users from the general population.

A pre-test of 20 interviews was completed before launching data collection to validate the programming of the questionnaire in both English and French.

Since we didn't use an actual probability sampling method, the calculation of the margin of error cannot be done for this project.

Leger adheres to the most stringent guidelines for quantitative research. The survey instrument was compliant with the Standards of Conduct of Government of Canada Public Opinion Research.

A complete methodological description is provided in the Appendix section of this document (please see Appendix A).

#### Notes to the reader

The cross-tabulations in this report present the detailed responses obtained for the questions in the Drone Users Survey.

Presented in the "Total" column are the results for all respondents, and then the results per subgroup (for example, by gender, age, drone owners and non-owners, etc.). Red (with a - symbol) and green (with a + symbol) numbers respectively indicate lower or higher results that are considered statistically significant compared to results obtained for other respondents. Two proportions or two averages are significantly different only when statistical tests confirm this difference.

In the example below, we observe that overall, 14% of respondents have a background in aviation (consistent with 2019 results, 15%). There are significant differences among the drone users based on the purpose of drone usage. Recreational respondents are less likely to have a background in aviation (11%). As shown in Table 1, the "non-owner" category refers to people who said that they do fly drones but do not own them. As such, they are drone users, without being owners.

Table 1. Background in Aviation According to Type of Drone Users (Base: Drone users)

<b>Q27. Do you have a background in aviation (flying lessons, pilot license or anything related)?</b>	<b>Total</b>	<b>Owner</b>	<b>Non-owner</b>
n= (weighted)	354	255	99
n= (unweighted)	701	506	195
Yes	14%	16%	11%
No	81%	81%	80%
DNK / Refusal	5%	4%-	9%+

Table 2. Background in Aviation According to Purpose of Drone Usage (Base: Drone users)

<b>Q27. Do you have a background in aviation (flying lessons, pilot license or anything related)?</b>	<b>Total</b>	<b>Recreational</b>	<b>Professional</b>	<b>Both</b>
n= (weighted)	354	284	48	22
n= (unweighted)	701	560	91	50

Yes	14%	11%-	25%+	30%+
No	81%	84%+	68%-	69%-
DNK / Refusal	5%	5%	7%	1%

Note: Unweighted n = actual number of respondents surveyed in each sub-group.

## Qualitative Research – Bulletin Boards

Leger conducted a series of four online discussion sessions with French-speaking and English-speaking Canadians. Conducting the discussion sessions online offered the opportunity to regroup people from all the regions in Canada. Two sessions were held with drone non-users (general public) and two sessions were held with drone users. One session in English and one session in French were held with each target. The sessions were held in the format of Bulletin Boards, i.e. chat-type discussion sessions. For each online discussion session, fifteen participants were recruited by our professional recruiters. A total of 55 recruits participated in the online focus groups (see Table 3 for details). All participants in the focus group received an honorarium of \$100.

Online discussion sessions were conducted using the itracks Bulletin Boards software to facilitate moderation and to ensure an optimal interface between moderator and participants. Participants could interact with one another and the moderator as the discussion unfolded. Each session was open for 12 hours in order to maximize the participation of as many recruits as possible.

All sessions allowed for remote viewing by Leger and Transport Canada observers.

Table 3. Details of the discussion sessions

Session Detail	Date	Recruits	Participants	Language
Session 1 – General public (non-users)	February 23	15	12	English
Session 2 – General public (non-users)	February 23	15	15	French
Session 3 – Drone users	March 2	15	14	English
Session 4 – Drone users	March 2	15	14	French

## 1.3 Overview of the Findings

### 1.3.1 Quantitative Survey

#### Profile and Habits of Drone Users

Overall, the incidence of drone users on the Canadian population is 13% (this includes both those who own and do not own a drone and for all types of use). This incidence rate includes recreational and/or professional drone users (those who use their drone for work or research), regardless of if they own a drone or not. Two-thirds of users own one drone (65%) and four out of five fly drones for recreational purposes (80%). 14% of users indicate flying drones professionally (for work or research purposes), while 6% note flying drones for both recreational and professionally.

Generally speaking, Ontario residents are more likely than residents of other provinces to be drone users (15% of Ontario residents fly drones) while Quebec residents are more likely to be non-users (89% of Quebec residents do not fly drones). Males are also more likely to be drone users than females: 19% of males fly drones while only 7% females do. The results found that 21% of Canadians between the ages of 18 and 34 fly drones, which was the highest amount among age groups. This decreases to 15% of Canadians between the ages of 35 and 54 and 6% for Canadians that are 55 years old or older.

Generally speaking, the respondents who said they did fly their drones for both recreationally and professionally, fly their drones on average 59% of the time for recreational purposes and 41% of the time professionally.

A clear majority of respondents do not have any background in aviation. When questioned about having a background in aviation, 81% of the drone users said they did not, while only 14% said they did. Results show that professional drone users are more likely to have a background in aviation (25%).

Generally speaking, recreational users mainly fly their drone(s) for the fun of flying (70%) and 26% fly drones to film videos or take pictures. Drone owners are more likely to fly their drone(s) just for the fun of flying (73%). On their part, non-owners are less likely to fly drones just for the fun of flying (62%) when presented with the opportunity to fly a drone.

One out of four drone users who fly their drone for both professional and recreational purposes (24%) identified the main reason for flying a drone or model aircraft professionally as filmmaking, videography or photography, and nearly one out of five for agricultural purposes (surveys or inspections (17%), inspecting buildings, structures or roofs (area surveys, perimeter scans) (16%), and/or research/academic research purposes (16%).

Generally speaking, drone users mostly fly their drone(s) in a rural area (37%). Users who fly drones for both recreational and professional purposes are more likely to fly their drone(s) in a suburban area (43%) while 41% of recreational drone users fly their drone(s) in a rural area.

Generally speaking, drone users mostly fly medium drones (over 250 grams but below 25kg) in urban settings (54%).

Users who fly drones for professional purposes are more likely to fly large drones (above 25kg) in an urban setting (21%) while recreational drone users are more likely to fly micro drones (under 250 grams).

### **Profile of Drone Owned**

Drone owners seem to mostly own one drone (65%), and seven out of ten recreational users own one drone. On the other hand, 45% of owners who fly drones for both recreational and professional purposes said they own two drones or more (30%).

Just under three-quarters of the drone owners bought their most-used drone through a retail store (72%), either online (33%) or in-store (40%). More than four in ten recreational users purchased their drone in-store (44%), whereas professional drone users are more likely to have purchased their drone directly from the manufacturer (23%) or through a website specializing in drones (13%).

Surprisingly, three in ten drone owners said they didn't know the make or brand of the drone they fly most often (31%). The most popular brand among the respondents is DJI (17%), followed by Parrot (11%). In the same vein, 76% also didn't know the weight of their most-used drone. The overall average reported weight of a drone is 6.7 pounds [3.04 kg] – 3.3 pounds [1.5 kg] on average for recreational-only users, and 27.0 pounds [12.25 kg] on average for professional-only users.

### **Clubs, Learning Techniques, Certifications and Safety Trainings**

Only 1% of the respondents are part of a drone or model aircraft club, but 15% said they are looking into joining one. More than four in five of the recreational users are not part of any drone or model aircraft clubs nor looking to join one (82%).

Just one in ten respondents have attended a drone flight school to learn how to operate a drone (12%), with 29% of professional users having attended a drone flight school. Most often, those who attended took an online class (65%).

Two respondents out of ten either have a Drone Pilot Certificate issued by the Government of Canada (13%) or are in the process of obtaining one (9%). One-quarter (23%) of the professional users are in the process of obtaining their certificate and 44% of the users who fly for both recreational and professional purposes already have their certificate. Results show that recreational users are more likely to not have a drone pilot certificate (79%).

Two-thirds of drone users who have a drone pilot certificate issued by the Government of Canada found the process demanding to some degree (66%). 43% said they considered it “Somewhat demanding” and 23% stated they found it “Very demanding.”

Nearly seven out of ten drone users (68%) have not received any training or seen any instructional videos specifically on Transport Canada’s drone safety regulations; only one-quarter of drone users (25%) have seen such a video or received such training. Drone owners are more likely to have received training or seen an instructional video on Transport Canada’s drone safety (27%). Professional users and users who fly drones for both recreational and work or research purposes are more likely to be part of those who have received training or seen an instructional video on Transport Canada’s drone safety regulations (34% and 66%, respectively). It is also interesting to note that drone users who fly drones for both recreational and professional (work or research purposes) are more likely to not know if they have received such training or seen such instructional videos (12%).

The majority of drone users who received training or saw an instructional video specifically on Transport Canada’s drone safety regulations, found it prepared them well for using a drone (86%). 54% indicated “Fairly good preparation” and 32% stated “Very good preparation.”

### **Information Sources and Regulations**

More than half of the respondents have never searched for information on Canadian Government regulations regarding drones or model aircraft (55%). Results show that 42% of drone owners have searched information on Canadian regulations, while only 33% of the non-owners have. While 57% of recreational users have not conducted such a search, nearly two-thirds of those who use drones for both recreational and professional purposes have searched for regulatory information (64%).

Drone users who stated that they have sought information on Canadian government regulations regarding drones or model aircraft, 61% of them did so using a search engine (e.g., Google, Bing, Yahoo, etc.), 57% visited the Government’s website and 17% went directly on Transport Canada’s website.

Half of the respondents self-evaluate themselves as not knowledgeable with regards to Transport Canada’s drones and model aircraft regulations (51%). All in all, only 11% of the respondents considered they were “Very knowledgeable.” Seven out of ten respondents who fly drones for both recreational and work or research purposes consider themselves knowledgeable of the Transport Canada regulations on drones and model aircraft (72%). The best-known rule by recreational drone users is that drones must be flown far away from other aircraft (76%). While they see themselves as not knowledgeable concerning regulations, their level of awareness on certain key elements of the current rules is higher.

Six out of ten drone users think that they are knowledgeable about drones in general (59%). 47% said they considered themselves “Somewhat knowledgeable” and 12% stated they were “Very knowledgeable.” Users who fly drones for both recreational and professional purposes are more likely to consider themselves knowledgeable (81%).

Nearly two thirds of drone users feel their knowledge of the Transport Canada regulations on drones and model aircrafts has remained the same over the last year (63%). Non-owners (12%) are more likely to indicate that their knowledge has decreased, while those who fly for recreational and professional purposes are more likely to indicate that it has increased (41%).

At least half of drone users indicate being aware of each of the rules regarding drones or model aircraft currently enforced in Canada, with the greatest proportion being aware that they must operate ‘far away from other aircraft (don’t fly anywhere near airplanes, helicopters and other drones; 70%)’. As might be expected, drone users who are owners, generally are more likely to be aware of the current rules compared to non-owners. Recreational users are generally more

likely than professional users to be aware of each of the rules surrounding drones and model aircrafts currently enforced in Canada.

Generally, each of the current aspects of the Federal government legislation, in relation to who can fly drones and how or where they can be flown, improve drone users' perceptions of drone safety. Recreational users are more likely than professional users to indicate their perceptions of drone safety are improved by each of the aspects.

Drone users are most comfortable with drones being deployed in emergency scenarios to help save people, like in search and rescue operations, followed by being used to deliver parcels, instead of by delivery personnel. Users are least comfortable with the idea of drones being used to transport people like a taxi service. Drone owners are generally more likely than non-owners to indicate that they would be comfortable with all potential uses of drones.

### **Communication**

Two out of ten drone users indicate that the best way that for Transport Canada to communicate relevant information to drones users in Canada regarding safely flying their drone would be through social media (22%), followed by online (19%), and/or television ads (17%). Online ads on drone speciality websites is the preferred medium for 35% of the users who fly drones for both recreational and professional purposes.

When it comes to staying informed on the newest trends about drones and model aircraft, two out of ten respondents do so on the internet through a Google search or other search engine (21%). YouTube channels are also a source of information for 10% of the respondents.

## **1.3.2 Qualitative Research**

### **Drone Users**

The majority of the participants would qualify themselves as recreational drone users. They mainly use their drones for photography or to film while they are on vacation or on a hike. Professional users also use their drone(s) for the same purposes.

Most drone users fly their drone anywhere that they would think would be interesting for an aerial shot, as long as it's a safe place to do so. Users with less experience said they mainly practice on their own property, outside their house.

When using the drone, respondents said they try to keep their drone within visual range, away from people, power lines, cars and other people's houses. Some professional users mentioned that they use of pre-programed flights because the height and speed of the operation must be constant.

The most popular brand among participants was DJI. Other brands were also mentioned to a lesser extent: National Geographic, Propel, Holy Stone, AKASO Tech, Protocol, and Bigly Brothers.

Most participants judged they are somewhat familiar with the laws and regulations surrounding the use of drones in Canada. Most think they know enough to fly the small drone(s) they own.

Most participants do not however know much about how the drone regulations are enforced. They imagine it is enforced by Transport Canada. Some mentioned they would not even know where to report an unsafe use they witnessed. Some others assume it falls on the local police jurisdiction.

For the participants who are aware of the laws and regulations, they try to always follow them in general. The majority mentioned trying to do their best with what they know. On the other end, some participants are aware they have not always followed the rules, more specifically while they were on vacation.



When thinking about precautionary measures, the majority mentioned not flying on windy days or when the weather is not good. Some participants mentioned that if they are not alone while flying their drone, they also ask their friend to keep an eye on the drone and an ear out for other aircraft that might enter the airspace. The majority of participants also mention not flying around other people, not flying near power lines, not flying near cars or houses but rather flying in a large open field.

For participants who have searched for general information about drones, they mainly searched for piloting tips, how to stay in control, how to use the drone they purchased or how to fix some part of their drone(s). Some also researched reviews prior to purchasing a drone, how well they work or issues that the drone they wanted to buy tend to have.

If they had to search for information about drones, the majority of participants would begin with a Google search and see where the search takes them. For laws and licensing, they would generally turn directly to Transport Canada's website. Some also mentioned YouTube as a search tool.

Some participants admitted not having done exhaustive research on drone laws and rules. Some did stumble upon the laws and rules while searching for other types of information. For the participants who did search for information on drone laws and rules, they searched for this information on the Transport Canada website.

If they had to search for information about laws and rules on the use of drones, most participants would start by doing a Google search. Some participants said they would start by skimming through Transport Canada's website and would then resort to a Google search if they did not find the relevant information.

The majority of participants have not taken any course or training to fly drones. Some admitted they would consider taking a class once they get the hang of simply controlling their drone. Only a couple of participants have taken a course or training.

Generally speaking, some participants do have privacy and safety concerns about the use of drones. Some are also concerned because they found drones are not as easy to fly as they expected. To alleviate their concerns, participants feel classes should be mandatory even for small toy drones, that way everyone would be educated and more aware of the laws and rules to follow, and also learn the right technique. Some participants went as far as saying anyone who buys a drone should have to provide a valid Drone Pilot Certificate to do so.

The majority of participants thought Transport Canada's rules and regulations for drones were excellent. When presented with a sample of Transport Canada drone regulations currently in force, most of the participants had no previous knowledge of them. However, they judged them to be common sense. Some participants were surprised to learn that drones above 250g must be registered with Transport Canada in order to be legally flown.

When presented with different possible future uses of drones, participants were rather divided. Most participants are comfortable with the use of drones for emergency situations like search and rescue, monitoring infrastructure like power lines and monitoring and protecting wildlife.

Most participants are not quite comfortable with flying taxicabs. Some feel the sounds would disturb them, others feel flying taxicabs 'sound like an accident waiting to happen'. On the other end, one participant pointed that if they helped reduce pollution, it might make her feel a little better about it. Another participant mentioned flying taxicabs 'sound cool and all, but there has to be a 99.9% chance it can't crash!'

More participants were comfortable with autonomous drones. They believe human errors can happen as much as computer errors. Some even think that it would be safer if drones were all computer controlled.

## **General Public**

The general population does not have an in-depth knowledge of drones. They have basic knowledge to what they can do: capture photos or videos, military applications, and delivery purposes.

The general population feel drones can be useful for both recreational and professional uses: photography, scientific, geographic, etc.

Participants who had little to no knowledge about drones compared them to remote-controlled toy cars. The only usage they see in them is to play.

Without having a lot of knowledge about drones the majority of participants thought drones can be safe, if used properly, and with the right intentions. The main unsafe attribute of drones mentioned by some participants is that it's human operated, so human errors can occur, and damages can be done to unaware bystanders.

Most participants were only somewhat aware of the drone laws and regulations, but whether they are aware or not of the laws and regulations, they assume that Canada does a good job at catching and penalizing unsafe drone pilots.

Generally speaking, most participants think the drone laws and regulations are enforced by Transport Canada, while only one or two participants feel it must fall on local law enforcement, i.e. local police, or the Royal Canadian Mounted Police (RCMP).

Participants who looked for information about drones, whether general information or information about laws and rules, were mainly looking to have a better understanding of a drone's function, how useful they can be in general, the price range for drones and safety rules and regulations.

If they were to conduct research on drones or the laws and regulations, the majority of participants would start off by a Google search if they were to search for information on drones. They then imagine they would either end up on drone enthusiasts' blogs, YouTube channels, or more serious governmental sources for safety information, such as Transport Canada's website

Participants mainly had a positive opinion towards drones. Some think it is a positive resource that can be of help for many different purposes. Even if overall, the majority had a positive opinion, a lot of them also had some reservations. They felt a person could use a drone to violate other people's privacy or if the battery runs out of power while flying, they could cause an accident.

Participants said the following may alleviate concerns: pilots being educated before being allowed to own a drone, limiting the height range the drone can fly from the controller or software, classifying drones (just like cars or planes), proof of a course completion to purchase a drone and clear and rigorous regulations.

After being presented with the current Federal government regulations, the majority of participants thought the rules and regulations were excellent and felt safer knowing they are in place. Reading the current regulations also brought up more questions from participants, such as who determines what is "properly qualified" and how does one go about getting qualified, or if registered, does a user require insurance to fly legally.

When presented with different possible future uses of drones, participants were rather divided. Some were not comfortable with all the different types of uses of drones presented, while others were comfortable with all of them, and some were partially comfortable with only some of the uses presented.

Almost every participant was comfortable with using drones for emergency situations like search and rescue, monitoring infrastructure like power lines and monitoring and protecting wildlife.

Only a few participants were comfortable with flying taxicabs. Most feel there would be many safety concerns. Some also feel they would always be worried about a person or a drone falling on them while walking on the streets.

Participants were more comfortable with autonomous drones. Most participants believe human errors can happen as much as computer errors. Some even think that if the drone is “all” computer-controlled, it would work better than a mixed system. Some even went on to say it would be even safer than human controlled drones. Others compared it to the most recent NASA Mars Perseverance Rover mission was controlled by a computer, and everything went smoothly.

## **1.4 Notes on Interpretation of the Research Findings**

The views and observations expressed in this document do not reflect those of Transport Canada. This report was compiled by Leger based on the research conducted specifically for this project. This research is not probabilistic; the results cannot be inferred to the general population of Canada.

## **1.5 Political Neutrality Statement and Contact Information**

Leger certifies that the final deliverables fully comply with the Government of Canada’s political neutrality requirements outlined in the Policy on Communications and Federal Identity and the Directive on the Management of Communications.

Specifically, the deliverables do not include information on electoral voting intentions, political party preferences, standings with the electorate, or ratings of the performance of a political party or its leaders.



Signed:

Christian Bourque, Senior Researcher

Léger