HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Transport, Infrastructure and Communities

TRAN • NUMBER 036 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Tuesday, November 29, 2016

Chair

The Honourable Judy A. Sgro

Standing Committee on Transport, Infrastructure and Communities

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● (0850)

[*English*]

The Chair (Hon. Judy A. Sgro (Humber River—Black Creek, Lib.)): I call the meeting to order.

Welcome to the Standing Committee on Transport, Infrastructure and Communities, 42nd Parliament, 1st Session, Meeting No. 36.

Thank you very much to our witnesses for coming and to committee members for being here this morning.

We're continuing our study under Standing Order 108(2) on unmanned aerial vehicle regulations—drones, as we all know them.

We have Doug Johnson, vice-president, technology policy, for Consumer Technology Association, and by video conference, Stephen Wilcox, airport manager, Oshawa Executive Airport, for the Canadian Airports Council.

Welcome to you both. Thank you very much for spending some time with us today.

I will ask Mr. Johnson to start.

Mr. Doug Johnson (Vice-President, Technology Policy, Consumer Technology Association): Madam Chair and members of the committee, thank you for the opportunity to appear before you this morning.

CTA is the trade association representing the $386 billion consumer technology industry. Our members include 2,200 companies, 80% of which are start-ups and small businesses, as well as more than 160 companies in Canada.

Much like the association itself, our drone policy working group reflects a diverse group of both large and small companies, including component suppliers, drone manufacturers, retailers, and service providers.

We're active on drone-related matters in several areas, including public policy, market research, consumer education, and industry standards.

As a champion of innovation, CTA has been a long-time advocate of clear rules authorizing drone use in the national airspace. In general, we believe it is important that Canada strike the appropriate risk-based balance in developing rules that support innovation and safety, with benefits to consumers and commerce.

CTA has been working with various stakeholders, including legislators and regulators in the U.S., to advance the drone industry, address safety and privacy issues, and promote the safe and beneficial use of drones.

In the U.S., CTA has partnered with the Federal Aviation Administration, or FAA, on the Know Before You Fly campaign to educate consumers on the safe operation of drones. Last year we served on the FAA's registration task force charged with developing consensus recommendations to the FAA on the registration of drones. Earlier this year, we served on the FAA's micro-UAS aviation rule-making committee, which developed consensus recommendations regarding drone flights over people.

CTA also supported the first permanent rules regarding commercial drone operations in the U.S., which took effect this past summer.

Rules regarding drone operations should embody a risk-based approach to integrating drones into the national airspace in order to maximize safety, utility, and economic benefit. Each rule, restriction, and requirement should reflect the appropriate amount of risk to that activity and then balance that risk with the associated benefits of that activity.

Rules for drones also should be flexible, for rapid technological innovation. To ensure that new drone-related technological developments are not stymied, drone rules must allow for sufficient flexibility and innovation, particularly for the small drones that constitute the vast majority of consumer and commercial operations.

At the same time, policy-makers should maintain a degree of control that is appropriate to the risk involved. When the risk is low, policy-makers should let innovation and experimentation flourish.

Already there are many hardware- and software-related examples of technological innovation supporting safety in drones and drone operations, but we must be careful to avoid mandating specific technological solutions at the expense of future safety-related developments or alternatives.

Regarding recent regulatory proposals for drones under consideration in Canada, our members have expressed concerns in a couple of areas. One concern is the proposed insurance requirement mandate for all UAVs. The other concern is the proposal to lower the regulatory category weight threshold for very small, low-risk drone operations from two kilograms down to one kilogram.

We are aware that regulatory alignment initiatives are under way between the Canadian and U.S. governments in several industrial sectors and topic areas, which are certainly important, given the significance of trade between the U.S. and Canada.

Regarding drone policy and recognizing the market response and industry support for the rules that took effect in the U.S. last summer, we would support Canada's careful consideration of regulatory alignment opportunities with what is already in place in the U.S.

As we head into 2017, one of our biggest challenges related to drone policy is with regulation at the local level.

Our industry is committed to a coordinated policy-making process between the public and private sectors. In the U.S., the FAA has reminded and educated state and local officials about the federal government's exclusive jurisdiction over drone safety, flight altitudes, flight paths, and no-fly zones.

Our members are concerned that misaligned and conflicting local rules could lead to a sloppy patchwork of mandates that restrict entrepreneurs and start-ups, stifle job creation, and confuse professional and recreational drone users.

Drones will change our lives for the better, providing quick delivery of supplies and medicine, enabling better crop production and efficiency, and allowing for safer inspection and maintenance of our infrastructure.

According to an AUVSI study, the U.S. drones market is driving the creation of more than 100,000 jobs over the next decade.

CTA forecasts U.S. drone sales will reach record heights by the end of this year, topping 2.4 million units—that's up 112% from 2015—and $1 billion in shipment revenues, which is up 80% compared with 2015.

With accompanying services, the drones market could easily exceed $1.3 billion within five years, and given the right policy environment, which includes balanced rules, stakeholder collaboration, and consumer education initiatives, we could see over a million UAV flights per day in North America by 2025.

Thank you again for the opportunity to appear here this morning. I look forward to any questions you may have.

The Chair: Thank you, Mr. Johnson.

Mr. Wilcox, the floor is yours.

Mr. Stephen Wilcox (Airport Manager, Oshawa Executive Airport, Canadian Airports Council): Good morning. Thank you for this opportunity to present to you.

My name is Stephen Wilcox. I'm the airport manager at the Oshawa Executive Airport and a commercial pilot. I also serve as the vice-president of the Airport Management Council of Ontario, and I have been on its board since 2007.

Today I am here representing the Canadian Airports Council. CAC has 50 members and represents over 100 airports across Canada. I am here today because we have a deep concern with the proliferation of UAVs operating in and around airspace. The UAV, the drone you see in front of me here on my desk, was picked up off the departure end of our active runway less than two months ago.

We understand that the Government of Canada is working on new regulations for UAVs, which is something we have been advocating for. As airports, we have a vested interest in how UAVs are introduced into airport traffic, as we'll need to invest in the infrastructure to support them. To this end, we need to be included in the planning and preparation of regulations and standards for their development and operation.

Transport Canada currently stipulates for safety purposes that operators not fly their UAVs within at least nine kilometres—that's five miles—from an airport or aerodrome, in order to remain clear of manned aircraft and most control zones. All aerodromes should be considered “no drone zones” if an operator does not have permission from Transport Canada or the airport operator.

What has CAC done? CAC wrote a letter to Minister Garneau a year ago. It was co-signed by a coalition of over a dozen associations in Canada. This included the Air Transportation Association of Canada, the Helicopter Association of Canada, and a number of provincial aviation councils.

We wrote about the need for a comprehensive regulatory framework for the safe and efficient operation of UAVs. It's important that this framework promote the safety of all aircraft sharing the national airspace system. Safe skies can only be ensured through comprehensive aircraft performance standards, compliant and compatible equipment, and standardized operating procedures, so that UAVs can be seen by pilots in their aircraft and by controllers on their displays.

At present, there is a limited coordination among the regulator, airspace operator, and enforcement agencies. Enforcement agencies currently lack clear regulations to enforce. Airports already serve a coordinating role in their communities. They are a recipient for complaints from aircraft noise as well as UAVs. In particular, we believe airports can assist the Government of Canada with the regulations it is developing so that all concerns are addressed. Airports have already done some work to raise awareness of the need to keep UAVs out of the airspace.

Last June we joined Minister Garneau for the launch of the national safety campaign to raise awareness of the dangers of UAVs. The minister unveiled the “no drone zone” sign to remind users to operate only in approved areas.

The no-drone signs were distributed to federally operated airports to promote the safe operation of drones. The signs were then further distributed across our various networks to multiple airports in Canada. Many have since posted the no-drone signs at and around their airports.

While these signs help deter users, we respectfully suggest that there should be an even greater effort by the Government of Canada to educate distributors, retailers, and purchasers of UAVs on the requirements and responsibilities of owning these aircraft systems.

Linking all of these aircraft with their owners through a registration and marking process is important for accountability and to facilitate the reporting of defects and operational difficulties. In this way, the UAV owner and operator can be held accountable for his or her operation of the aircraft. Without an identification process, the owner of the UAV could simply leave the scene of an accident or an incident and avoid any responsibility for his or her behaviour.

We expect UAVs to become increasingly common in our airspace, and it's imperative that we keep Canada's airspace safe.

Another primary issue related to this is runaway, uncontrolled drones. We need to have a process to deal with that. Again, here is a great example on my desk this morning. We had no ability to speak with the operator so that he could understand what he may or may not have been doing correctly.

I thank you this morning. I'm pleased to take any questions you may have.

● (0855)

The Chair: Mr. Wilcox, could I ask you to stand up so that we could get a better look at the drone that's in front of you? We can see two ends of it.

Mr. Stephen Wilcox: Does that help?

It's not a large drone, but if we remember our high school math, there was something to do with velocity and energy and mass, and you can imagine something this small hitting an aircraft at 200-plus miles an hour.

The Chair: Thank you very much.

We'll go on to questions, with Mr. Berthold first, for six minutes.

[*Translation*]

Mr. Luc Berthold (Mégantic—L'Érable, CPC): Thank you very much, Madam Chair.

Many thanks to the witnesses for coming to enlighten us about drones this morning.

I have a lot of questions to ask and my six minutes will certainly not be enough.

Let me begin with Mr. Wilcox, of the Canadian Airports Council.

I have a few questions about the proliferation of drones. Is the drone in front of you the only incident you have had to deal with since drones have become more common, as you said?

[*English*]

Mr. Stephen Wilcox: No, speaking through you, Madam Chair, it's not. We see a large number of drones, and as airports we're the recipient of information. We receive, certainly on a weekly basis, inquiries about where to operate drones.

We see anything, of course, that is on our airfield. This one happened to be picked up in a routine inspection of the runway, and as I said, it was on the departure end of the runway. We've also had reports of near misses in and around our airspace, as well as calls regarding drone operations—not from the operator, but from individuals around the airport.

We are seeing in an increase in the nature of drone operations, absolutely.

● (0900)

[*Translation*]

Mr. Luc Berthold: To be more specific about what is happening, do you keep a record of incidents involving drones?

[*English*]

Mr. Stephen Wilcox: Within airports we have a system called the safety management system. Essentially we write down everything we do, we do everything we write down, and we track absolutely everything that occurs, so the answer is yes, we have a record of all inquiries. We have a record of any issues for us at the airport specifically. As well, such things as the near misses would be reported to Transport Canada, as would this drone issue on the airport.

[*Translation*]

Mr. Luc Berthold: As a representative of the Canadian Airports Council, can you send the committee a list of the incidents involving drones in the past two years, and the context of those incidents? That could be very informative and help us with our study and with the recommendations we will be making.

[*English*]

Mr. Stephen Wilcox: What I would like to do is assemble that data looking at the airports across Canada. I think we can reach out to the public airports and see what issues they've had so that you get a comprehensive picture, recognizing again that this is a new field and that the data may vary.

[*Translation*]

Mr. Luc Berthold: Okay. That would be very interesting for the members of the committee.

You said that you wrote to the Minister of Transport, Mr. Garneau, a year ago. Can you send a copy of that letter to the committee?

[*English*]

Mr. Stephen Wilcox: Certainly we can make that available to you.

[*Translation*]

Mr. Luc Berthold: Thank you.

How did the minister respond to that letter?

[*English*]

Mr. Stephen Wilcox: Unfortunately, I do not have a copy of the response, as I was not part of the committee that submitted the letter.

[*Translation*]

Mr. Luc Berthold: Okay.

I will turn to Mr. Johnson now.

Drones represent a sector of economic growth and we welcome that growth. They raise issues of responsibility and safety, as we have heard from several witnesses. You are talking about making our regulations consistent with U.S. regulations. You have contributed a great deal to these regulations.

From what I can see initially, there are three kinds of drones. There are very small ones, which as I like to say are the kind that destroy the inside of a house and that children play with. There are the more commercial ones, used by amateur photographers. Finally, there are drones designed exclusively for business and transporting merchandise.

Do the U.S. regulations reflect these types or do they focus on the weight of the devices only?

[*English*]

Mr. Doug Johnson: Madam Chair, the approach to classifying drones has varied depending on the regulation in question. With regard to drone registration, for example, there is an exemption for drones weighing less than 250 grams, which really captures a lot of what we would commonly consider to be toy drones. Those don't need to be registered, and everything above that weight threshold up to about 25 kilos or 55 pounds does need to be registered.

The approach that was taken in the committee I referred to, which focused on drone flights over people, by and large categorized drones based on risk factors associated with impact energy, except for a very low category, which was weight-based, of 250 grams and below. As we considered the risks and issues related to drones flying over people, the key parameter really was impact energy. In its upcoming rule-making, the U.S. FAA will presumably take an approach whereby they specify impact energy levels and break out drones in different categories, all in the small UAS or UAF realm of 55 pounds and under.

● (0905)

The Chair: Thank you very much.

Mr. Sikand is next.

Mr. Gagan Sikand (Mississauga—Streetsville, Lib.): Thank you.

My question is for Mr. Wilcox.

I was speaking with someone from Pearson airport. They had an incident similar to yours in which they had a drone at the end of a departure runway and the planes had to immediately fly right. I'm glad you were able to bring that subject in.

I would like to know your thoughts on geofencing. I understand you want legislation in place for no-fly zones, but should we go one step further and just have the larger drones not possess the physical capabilities of even entering that airspace?

Mr. Stephen Wilcox: Thank you for that question.

There are a number of technologies to, shall we say, defend ourselves from drones at airports. Geofencing is one method, although my understanding is that it is possible to override the software that essentially creates the geofencing. There's also some technology now that can be installed that monitors airspace for intrusion of drones. Today it's limited to about one kilometre, whereas our approaches reach out to about nine kilometres.

The challenge really isn't with people operating the drones within the regulations. The challenge is the unintentional operation of the drones outside of the regulations. We will see, in the absence of information, people who simply aren't aware that the little park they're standing in is close to the approach for a runway. It's surprising how unaware people are of airplanes. That's one issue.

The greater one, of course, arises when the drone runs away. I don't believe for a minute that someone tried to park this drone on the runway. It just happened to be that this is where it ran out of energy when the batteries ran out. Ultimately, it likely just ran away from someone, and that's the big challenge that I think we need to deal with.

We need to make sure that people are aware, and I think we need to be able to register the drones so that we know who's operating them. We also need to create a non-punitive system so that the operator of a drone knows if, oops, it runs away, to pick up the phone, call Oshawa or a central number in Canada, and say "My drone just ran away" to let you guys know about it.

We know about obstacles in the airspace. We notify pilots. We do it all the time for ground-based cranes, for birds. I think making people aware and making sure we get notification when we have issues is going to do as much as geofencing. There is such a big footprint around an airport that even nine kilometres only begins to deal with the primary air operations.

Mr. Gagan Sikand: Thank you for your remarks.

The Chair: Go ahead, Mr. Iacono.

[*Translation*]

Mr. Angelo Iacono (Alfred-Pellan, Lib.): Thank you, Madam Chair.

My question is for Mr. Wilcox.

With regard to drones, what in your opinion is the most urgent issue?

[*English*]

Mr. Stephen Wilcox: I'd have to say today it's a lack of information. You can go to virtually any big box store online and buy a drone, and there's virtually no information that comes with that package, or only limited information.

I think the biggest issue is a lack of awareness and carrying the message of where you can and where you shouldn't operate them. I think we all recognize that the drones are going to be here, particularly on the recreational side. That's where the biggest deficiency comes. We're talking to professional drone operators and we allow them to operate in and around the airspace all the time. They're professionals; they have a coordinated process. The SFOC process that Transport Canada established is working very well.

The really big issue today is the lack of awareness on where you can and can't operate them, and what responsibility an individual takes when they hand one of these over either to themselves or to their child. Think of it from the safety perspective of handing your eight-year-old the keys to your car and saying, "Good luck, son. Let me know how you make out."

[*Translation*]

Mr. Angelo Iacono: Thank you.

Mr. Johnson, what are your thoughts?

[*English*]

Mr. Doug Johnson: I would say that the most pressing issue is also probably an opportunity.

I think you appreciate how quickly the technology is moving with drones and drone technology. At the same time, technology does offer solutions to some of these safety problems we've heard about. I think we have an opportunity not only to build the rules and regulations that we need as a framework for this new and emerging technology but also to provide solutions that uphold and enhance safety.

I would highlight, with respect to airports in particular, an announcement from back in the spring from south of the border. There's a partnership, in effect, between an airport association in the U.S. and one of our member companies focused on airspace intelligence. They've developed a digital notice and awareness system specific to airports so that UAV operators can, first of all, determine whether they can fly in that area and then notify the local airport. The local airport also has the means to reach out to that operator with a message as well. This is one of many examples of technology and services and software developing solutions that help support safety, particularly in this case around airports.

I think a challenge is ensuring that we have the rules that strike the right balance between safety and innovation and allow this market to grow. At the same time, I think we have an opportunity to recognize that there are technological solutions sometimes that are superior to regulations in solving some of these problems. Although it's tempting to want to mandate something that looks attractive and beneficial, we would also caution against mandating specific solutions, as I stated in my remarks, because technology evolves, and there may in fact be a better way six months or six years down the road.

● (0910)

[*Translation*]

Mr. Angelo Iacono: Thank you.

[*English*]

The Chair: Thank you very much, Mr. Johnson.

The floor is yours, Mr. Aubin.

[*Translation*]

Mr. Robert Aubin (Trois-Rivières, NDP): Thank you, Madam Chair.

I would also like to thank the witnesses for being with us here this morning.

My question is for you, Mr. Johnson.

You said something in your presentation that really surprised me. You talked about 100,000 jobs related to the drone industry over the next 10 years. I have trouble imagining such an explosion. What I see in my immediate surroundings is people who use this technology to create added value for an existing business. I am thinking for instance of a video company that also uses drones to capture different camera angles.

Can you briefly describe the potential development that leads you to talk about 100,000 jobs in 10 years?

[*English*]

Mr. Doug Johnson: The reference to the 100,000 figure was from a study by AUVSI, the Association for Unmanned Vehicle Systems International. Although I don't have the study in front of me, I do know it takes a very holistic look at this market and this technology. Understandably, those jobs are in the commercial space. They are as diverse as new jobs within companies using this technology to support their operations or support safety in their industry sector to jobs related to training or education or other realms around drones. There are a variety of industry sectors and professions that can benefit from this technology. They took a look and quantified what that would be across various industry sectors.

I would be happy to submit for the record, Madam Chair, a copy of this study, if it would be helpful and instructive.

There certainly is a job creation potential here over the next several years, again depending on whether we have the right balance and policy framework in place to support it.

[*Translation*]

Mr. Robert Aubin: Thank you.

I was just going to ask you for the study, if possible.

My next question is for both witnesses.

You both spoke, albeit from slightly different perspectives, of your desire to help the government develop regulations. On the one hand, Mr. Johnson, you said that we need flexible rules that can keep pace with changes in technology. On the other hand, Mr. Wilcox, you seem to want stricter regulations. At least that is what I understood. You have given two examples and talked about the importance of registering devices.

If possible, I would like you to tell us which three aspects you think should be a priority in future regulations. By that I mean three aspects that you think are missing from current regulations.

We can begin with Mr. Wilcox.

[*English*]

Mr. Stephen Wilcox: The drone itself is an aircraft. It's going to be operating in the airspace with aircraft, and we already have a series of very good guidelines to demonstrate how we operate aircraft.

First we need design standards. I realize the technology is evolving, but I believe we could establish performance-based standards that would allow us to make sure that the drones are going to operate within their design parameters. That's what we expect for aircraft, and we should expect no less for drones.

Second, we also need a set of standards for the operators of drones. We realize that we're going to hand these over. In some cases, they are as simple as a pleasurable toy in a backyard, and we should not necessarily limit that, but we do have to educate. I think it is appropriate that we license or approve operators of these. Today you can get a recreational licence in 25 hours and fly an airplane in airspace, so we already have a system in place that can allow risk-based licensing. We need licensing of the individual.

The third piece of the puzzle is registration. We need to be able to register them, because the only way that we can learn from the industry as it grows, and learn from our successes and failures, is through registration so that we can understand them. I know absolutely nothing about this drone, so there's very little I can do to prevent it from happening again. If I knew who the operator was, then through education and at times through enforcement we could educate them.

You asked me to send statistics. Part of the way we gather that is through registration, so—

● (0915)

[*Translation*]

Mr. Robert Aubin: Excuse me for interrupting, but I would like to give Mr. Johnson a few seconds.

[*English*]

Mr. Doug Johnson: I would agree with Mr. Wilcox in at least a couple of these areas he flagged. We also agree that registration is very important. We got to the result we did on registration with the U.S. FAA through a collaborative process that included various stakeholders from aviation and the tech community.

The goal really was to link the owner with the drone. We took an approach with drone registration that focused on the owner and not the vehicle. We wanted a simple, straightforward, and convenient means of registration of drones, and we got that in the end.

On the knowledge test, education of drone operators is crucial. Whether you're talking about a recreational user or a commercial user, we want to make sure that's also easy. We like the self-test idea. For the low-end, lightweight drones, making that convenient and online is important. That's a second area of interest and concern.

The third one that I think is lacking is another area I agree with Mr. Wilcox on, which is performance-based standards. That is the approach we took with regard to drone flights over people. That is very much on our minds, and I think we have a lot more in common than we do differences in wanting to build this future.

The Chair: Thank you very much.

Mr. Fraser is next.

Mr. Sean Fraser (Central Nova, Lib.): Thank you very much to our witnesses. I really appreciate your being here today.

First, for Mr. Johnson, you mentioned at the beginning of your remarks the importance of the innovation in this new industry. What can we do as a federal government to best support innovation in the UAV industry, or potentially support the development of new applications for this technology?

Mr. Doug Johnson: What you're doing with these hearings is important, and getting the perspectives not only from companies in this growing industry but from other stakeholders that have a role in the aviation market is vital.

Understanding where our technology is going is hard for all of us, but for that very reason we want to come up with a rules infrastructure that is flexible, as I mentioned in my remarks. We need flexibility of approach. With the rules that were put in place and took effect back in August in the U.S., we have that structure.

We're going to need to address future technology and directions with the drones, for example, with flights at night, flights over people, and flights beyond the line of sight. This is certainly foreseen. It is being tested in some cases, and used today in some cases, so we need permanent rules that address those needs of this technology as well.

Yes, innovation is at the heart of this industry, but safety is paramount. In striking the right balance, we need to protect and uphold both of those things.

Mr. Sean Fraser: If you're a fan of what's gone on in the U.S., with it providing a bit of a flexible system that lays the landscape, is the easy solution for us to push toward harmonization between our regulatory framework and the one adopted in the U.S.?

Mr. Doug Johnson: Madam Chair, it is important to look at what's been accomplished, how it's working, and how it's been received by this market of diverse players. While I don't want to simply tell you to follow what they did south of the border, Transport Canada has taken a very considered approach to this topic. Transport Canada was involved in the micro-UAS ARC, which I talked about with drone flights over people. However, to the extent that we're building a policy framework that makes sense and strikes those balances, if we have best practices or something that's working, it's worth a careful look.

In the context of U.S.-Canadian trade and commerce, there is an apparatus available for alignment of various regulatory approaches. Therefore, we might want to look at opportunities to facilitate alignment and growth on both sides of the border with this industry.

● (0920)

Mr. Sean Fraser: Excellent.

I have a question for both of you. Perhaps just to break it up, we'll go to Mr. Wilcox first.

You both talked about the importance of an education campaign. I think Mr. Johnson referred to the Know Before You Fly campaign he was somewhat involved with. What would this look like if the federal government were to roll out something to educate users of UAVs? What would be the key elements of a public awareness and education campaign for these recreational users that seem to be of paramount concern?

Mr. Stephen Wilcox: We did the initial information piece on the no-fly drone signs that went up around airports. Getting some basic information out somehow at the point of sale, either in the packaging, at least with the existing ones, would be a very good start. That's what we need to look at with distribution at the initial stage. That would be my recommendation.

Mr. Sean Fraser: Mr. Johnson, go ahead.

Mr. Doug Johnson: I would like, Madam Chair, if there's interest, to submit for the record information about what's been done already.

There's quite a lot of information that drone manufacturers provide with their products that helps educate consumers. Whether it's printed material or something in the online set-up of that drone, a lot is being done now.

There is a program that has been in place for more than two years —I think almost three now—called the Know Before You Fly campaign. It could be duplicated. It could be adopted and reflected from various governments at various levels.

It's important to understand what's been done already, what's in place already, and then also what our U.S. Congress recently required manufacturers to do as well from our recent FAA Reauthorization Act. I'd be happy to provide a little more detail about that to the committee if there's interest.

Mr. Sean Fraser: That would be very helpful, actually.

Madam Chair, do I have much time left?

The Chair: You have a minute and a half.

Mr. Sean Fraser: Perfect.

On the identification or registration of new drones, is the best way to do this the equivalent way we do it with a vehicle, which might have a vehicle identification number and a registration process? When you go to buy a car, you go and get a licence. You're qualified. You buy a car and you register it with some central registry. How should this look?

Maybe Mr. Wilcox could go first.

Mr. Stephen Wilcox: We already have a national system for registering aircraft in Canada that Transport Canada administers. The most direct process is to drop this into a streamlined process within Transport Canada's national registry, because, again, it is a national issue. Airspace is the purview of the federal government, so that's the place for registration. It also needs to be, as was mentioned by Mr. Johnson, a fairly easy process. Most people want to comply. Nobody gets out of bed in the morning and wants to break the rules; people want to comply. We need to have a simple process for them to do so.

Mr. Sean Fraser: Mr. Johnson, we have just a few seconds remaining, if you want to let us know your thoughts.

Mr. Doug Johnson: My industry colleague reminded me that at least one of our members already has a program with Transport Canada to provide information to that drone operator along with the drone in the packaging. I think a simple, straightforward, and online means of registration will facilitate registration in the greatest numbers possible. That's of interest. That was of interest for us in the U.S. Presumably it is here too. Let's make it as easy as possible. Let's make it online. Let's use technology to make it happen.

Mr. Sean Fraser: Thank you very much to both of you.

The Chair: Mr. Hardie, go ahead.

Mr. Ken Hardie (Fleetwood—Port Kells, Lib.): Thank you, Madam Chair.

Thank you for being here.

First I'd like to give notice to everybody of a motion that we will hopefully be bringing forward to the next meeting.

It reads:

> That the TRAN Committee urge the Public Safety and National Security Committee, and the Justice and Human Rights Committee, to consider utilizing their respective expertise to examine any possible privacy, public safety and/or national security implications of UAVS and UAV technologies in the context of potential threats resulting from the nefarious use of this emerging and expanding technology.

We've given this to the clerk, and it will be distributed in time for us to look at it at the next meeting.

Mr. Johnson, the idea of a drone running away gives you that vision of being on the Prairies and being able to watch your dog run away for two days. Have the manufacturers done anything to mitigate the possibility that a drone will just simply take off?

● (0925)

Mr. Doug Johnson: As I suggested in my remarks, there are a number of hardware and software technologies out there that support safe drone operations, whether it's guards for the props, geofencing, or return-to-home functions. There are low battery indicators so that you know when you're running out of power, or there's an automatic return to home before the drone simply lands.

There actually is a pretty good list that I could share with the committee of various things that would support safe operation and prevent the runaway scenario you're talking about. I'd be happy to share it, Madam Chair, with the committee, if there is interest.

Mr. Ken Hardie: Yes, please do. The encouragement from all of us is to share information, briefing notes, etc. through the official portal so that we can take it in as evidence for our discussions and recommendations.

Thank you.

I'll turn it over now to Mr. Badawey.

Mr. Vance Badawey (Niagara Centre, Lib.): Thank you, Madam Chair.

I want to preface my comments by saying that market research indicates that global civil UAV spending could nearly double within the next decade, from $6.4 billion annually to $11.5 billion. With this, the diversification of commercial applications, operators, aerospace manufacturers, and at the same time UAV recreationalists will in fact be taking full advantage of the capabilities and the capacities of these drones.

I want to dig a bit deeper into some of the questions already asked with respect to geofencing.

What technology is available at the present time with respect to individuals, whether it be to airports or to private homeowners? What technologies and therefore abilities are available for people to either block or disarm drones in certain geographic areas?

Mr. Doug Johnson: Madam Chair, this is a little outside our purview. I know that we're not directly engaged, for example, in drone countermeasure research and development, but there is such R and D going on right now. Our U.S. Congress has been interested in this topic as well. There are private sector companies that are focused on drone countermeasures.

We as an association are not directly involved in those efforts, and to my knowledge our members are not providing those types of countermeasure technologies. They are incorporating technology into the drones with software and hardware that support safety, obviously, but drone countermeasures are a bit outside our realm at CTA.

Mr. Vance Badawey: The reason I bring it up is twofold. One is that I think there's an obvious concern with respect to areas being breached. That concern can pose itself as so much of a concern that it may hurt the industry with respect to the availability and use of drones in certain geographical areas.

My comment is to the technology sector of drones. You may want to consider—you should consider—getting into that realm of technology. It will complement the drone industry itself. We recognize as a committee that through Transport Canada as well as through Public Safety there is going to be an issue with respect to areas being breached, whether it's for security reasons—stadiums or areas that people such as the Prime Minister, for example, may frequent at times—or for privacy issues involving people's homes and backyards, and seeing inside their homes through windows.

This is just a recommendation to you that your team may want to get to sooner rather than later.

Mr. Doug Johnson: Through you, Madam Chair, I'll say this is understood. I think the geofencing technology is very important to showing you where you should not be flying. In fact, drones may not even take off in certain areas because of the software controls of geofencing.

At the same time, our industry expects to play a role in the development of standards related to the identification of drones—not in owner registration, but in identification of a drone up in the air. We have a role to play there as well.

Thank you.

Mr. Vance Badawey: Once again, that's fine; it's nice to find out who's flying the drone or who it belongs to, but that's after the fact. It's reactionary. I'm more interested in being proactive before the fact, so that they're not there in the first place.

The Chair: Thank you very much, Mr. Badawey.

We move on to Mr. Rayes.

[*Translation*]

Mr. Alain Rayes (Richmond—Arthabaska, CPC): Thank you, Madam Chair.

I would like to thank the two witnesses for being with us today.

You talked about possibly amending our regulations to bring them into line with U.S. regulations. Can you tell us about what is happening elsewhere in the world? Are there other elements that we should consider, given what is happening elsewhere in the world?

I would like to hear from both of you on this.

You may begin, Mr. Johnson.

● (0930)

[*English*]

Mr. Doug Johnson: We're just getting involved in a more direct way with countries, regions, and jurisdictions outside the United States, Madam Chair. The policy environment is competitive, much like the industry. As you may have heard in earlier hearings, we're building a policy framework, and to date companies have found it easier to do business or to do research and development with the drones in certain countries that are more forward-thinking, or in certain regulatory environments that are quick to adapt and create that opportunity. It is competitive from our members' standpoint, but at the same time alignment, as you acknowledged, is something that's of interest to us.

I would say that at least in North America, things have narrowed for policy development and opportunities. The U.S. probably two years back was a bit behind, even in the North American market, but I think we quickly caught up with these permanent rules that are in place since last summer and with the rules that will follow for drone flights over people and other areas of expanded operations.

I can't point to one country right now that I think is really far ahead. I think policy-making continues in a lot of these countries. We know some of these countries' regulators are interested in opportunities to tell their stories before our members, so there's a competitive policy-making aspect to this.

I'd be happy to share with the committee the resources that tell us what's happening in different markets, if that's helpful to the committee. There have been reports from our U.S. government about what's happening in different markets. There was a report about six months ago, I believe, that gives some insights from Europe and Asia, in addition to North America.

[*Translation*]

Mr. Alain Rayes: It would be interesting to have them.

You have the floor, Mr. Wilcox.

[*English*]

Mr. Stephen Wilcox: We've come a long way since the Wright brothers' airplane here in the U.S., and we have the International Civil Aviation Authority, which is tasked with creating regulations on an international basis. Its head office is in Montreal, and that's because Canada was one of the initial signatories to this association. It sets the standards for everything we do on a global basis for aviation, and that would be the place to look for standards on an international basis. I do not sit on the ICAO committee, but I would be happy to bring some information back to this committee on exactly what is happening at ICAO on an international basis for the establishment of regulations in this field.

[*Translation*]

Mr. Alain Rayes: Mr. Wilcox, you mentioned a rule that provides that drones cannot be operated within a 9-kilometre radius of an airport. Is that correct?

[*English*]

Mr. Stephen Wilcox: Currently that is the policy that Transport Canada is applying to the operation of drones, but there are no drones—that is, zero drones—within nine kilometres of an airport or an aerodrome. You will recognize that an aerodrome can be a farmer with his airplane in the field or Toronto Pearson Airport. It is wherever aircraft operate.

[*Translation*]

Mr. Alain Rayes: That's perfect.

Do you have technologies or tools to monitor and make sure there are no drones in that environment? If there is a technology, I imagine that major international airports do that monitoring well. On the other hand, I do not think that small and medium-sized municipalities that have regional airports have access to those protective technologies, especially since the aircraft that use those airports do not usually have an electronic system and are flown by sight. Is that correct?

[*English*]

Mr. Stephen Wilcox: Today in Canada we have a national radar system that supports most of the busier airspace in Canada. Anywhere that airspace exists, the drones could be equipped with what's called transponder technology. It's what the aircraft have, and it's why the aircraft are visible on the radar. If you equipped drones with transponders, at least in that busy corridor, you would see them in close proximity. They would show up on the radar screens immediately in the control towers.

Outside of the radar airspace and at low altitudes in proximity to the radar airspace, you wouldn't see them, but you would certainly capture the majority that exist in the busy airspace. As I mentioned earlier, new technology that has been introduced is able to detect drones within a kilometre of an aerodrome. It's basically a ground-based station that has a variety of sensing tools that are looking for drones. A kilometre is a very short distance when it comes to aircraft, but certainly it's the start of being able to monitor them.

● (0935)

[*Translation*]

Mr. Alain Rayes: If you detect a drone, how would you respond if it entered that zone? Would it be possible to bring it down? Are there electronic fences? Perhaps a bazooka could be fired at it to prevent it from reaching its destination? I do not really know what the solution might be.

Some hon. members: Oh, oh!

Mr. Alain Rayes: I imagine there must be some way to bring it down.

[*English*]

The Chair: Give very short answers, please.

Mr. Stephen Wilcox: The first step in the equation is to notify the aircraft and the pilots that there is in fact a drone there. We do that every day for birds and other obstacles that appear at airports. We have a NOTAM process, a notice to airmen that can be immediately disseminated to the aircraft. If the airport has a control tower, the control tower becomes aware of it, and they manage the airplanes around it. Outside of controlled airspace, again, the NOTAM process is going to be the first step.

Then, as I said, I think that the goal would be to reduce the number of incidents through registration and education. If we're going to see an increase in use, we want to see a reduction in unplanned drone intrusions.

The Chair: I'm going to have to shift over to Mr. Hardie now.

Mr. Ken Hardie: Thank you again, Madam Chair.

There are a couple of things here.

Mr. Johnson, I want a little about innovation and experimentation. What kind of environment exists right now?

I come from an era when kids used to soup up their cars, and there were drag strips where they could go and show off what they had accomplished. I would imagine that in this area, you have everything from the lab where they're working on bigger, better, faster, higher, right down to the kids working in the family garage at home.

What is the industry doing to embrace and engage the whole range of activities that could be going on here?

Mr. Doug Johnson: In fact, Madam Chair, though you, we at the Consumer Technology Association are trying to uphold that broad spectrum of interest in drones, ranging from the kid who wants to play with the toy drone to more sophisticated commercial operations involving drones that are often on the same platform as can be bought by the consumer.

It's important to have a policy framework that allows somebody to play with a drone, get interested, and then decide that they could make a business out of it or that they could start a small business and provide a service, maybe providing a service to their local real estate firm by taking pictures.

We want to have a pathway for those people—maybe kids, in some cases, or adults—to learn about this technology, play with it, get interested in it, and do something with it.

At the association level, we're certainly aware, broadly, of the activities of our members, which range from providing new features and new models on their drones, introduced every few months, to companies experimenting with ways of controlling multiple drones at the same time—not just singles, but swarm approaches to drone technology.

There are a lot of interesting things going on in this industry, but it does have kind of a personal dimension to it that we want to keep in mind too. Today's recreational user might be tomorrow's small business owner.

Mr. Ken Hardie: You both have mentioned coming up with performance-based standards. I would be very interested in getting some more background information on what you consider those standards to be. That is something that you could submit offline. Just briefly now, could you give us maybe the top two or three performance-based standards? What kind of performance would you want to see included in the regulation?

We'll start with you, Mr. Wilcox.

Mr. Stephen Wilcox: The technology is great, and we should make the regulations performance-based so we don't limit what technology can do.

A great example would be requiring a performance-based standard in all of them so that as the unit begins to lose signal, before it loses signal, or immediately after it loses signal, it immediately lands. Those kinds of technologies would be in the performance. It would be part of the design standard that the technology must accomplish this. The same kind of thing would apply if it was nearing the end of its battery life in flight. It would need to land.

Where we have databases, we could consider databases of registered air drones. There are roughly 1,000 registered air drones. You could build into the software that it must contain the locations, and that they can't fly in those locations.

That's a bit of an impediment for commercial operations. They might in fact be permitted. Again, that's the sort of thing that I think you can do quite easily with technology, with a performance standard that says the unit must perform in such a way.

● (0940)

Mr. Doug Johnson: The example I would like to give regarding performance-based standards, Madam Chair, would be from the approach we took on the advisory committee concerning drone flights over people, which, except for the very lowest category, was a weight-based approach.

We broke out categories based on energy per unit area. The way in which you would meet a threshold determined by the regulator—that is, the numerical value—would be open to different approaches, not restrictive in terms of technology and ways to meet that threshold through various mitigations, but flexible in that regard. In other words, it would not be prescriptive, in that you must use this technology if you want to do this kind of operation, but rather that you need to meet this energy impact threshold and you can do as you wish and invent as needed to meet that threshold.

That is an example of a performance-based standards approach in this realm.

The Chair: You have half a minute for a short question.

Mr. Ken Hardie: There was a firearms manufacturer somewhere who wanted to make a ceramic firearm that wouldn't be picked up by airport security. The issue is that just because you can, you shouldn't necessarily do some of the things that technology allows you to do.

Again, we look to industry to use some common sense here, Mr. Johnson. Do you see evidence that this framework is in place?

Mr. Doug Johnson: Our industry is focused on safety, and it shares that interest with the aviation community. We are participating as full partners in these regulatory dialogues with governments and we are focusing our industry's energies on innovating safety measures in this regard.

I would stress that we're coming from a perspective that not only includes appreciation for safety but obviously involves innovating our way to solutions that can uphold safety.

That's the response I would give, Madam Chair.

The Chair: I thank our witnesses for sharing that information today. There were a number of requests for information, starting with Mr. Berthold on occurrences and including the letter from Mr. Garneau. I think you've all heard the requests.

Now I have to make a bigger request: can we get the information by the end of next week? The committee was hoping to be able to table an interim report by December 15, so we would need to have your information, if you could get it to the clerk for distribution to the committee, by the end of next week. It would be very much appreciated.

Thank you very much.

We will suspend momentarily while we switch our witnesses. I thank you again.

● (0940)

(Pause)

● (0945)

The Chair: We have representatives from the Department of Transport: Laureen Kinney, assistant deputy minister, safety and security; Aaron McCrorie, director general, civil aviation; and Mark Wuennenberg, general flight standards inspector.

From the Royal Canadian Mounted Police, I believe we have Byron Boucher, assistant commissioner, contract and aboriginal policing. We may also have as an RCMP witness Staff Sergeant Dave Domoney.

If we're moving along a bit quickly, it's just that time is of even more essence, as we expect a vote to be called, and we very much want to hear from all of you today.

I will turn the floor over to the Department of Transport, to whoever would like to go first.

Ms. Laureen Kinney (Assistant Deputy Minister, Safety and Security, Department of Transport): Thank you, Madam Chair. I am speaking for Transport Canada.

I have a prepared set of remarks, but if the committee would prefer, I could table those to be reviewed afterward, in the interest of giving you more time.

The Chair: Yes, that's good, because we all have them.

Ms. Laureen Kinney: Then I would just say that we welcome the opportunity to speak today and look forward to your questions. We will attempt to give you as much information as we can in as brief a period as possible.

The Chair: Okay.

Do we want to hear from the RCMP now as well, with their opening remarks? Yes?

Go ahead, Mr. Boucher.

Assistant Commissioner Byron Boucher (Assistant Commissioner, Contract and Aboriginal Policing, Royal Canadian Mounted Police): Good morning, Madam Chair.

In the same way, I don't know whether you want me to read through these notes or not. We can do the same thing Transport has done, as you have them before you in both official languages. In the interest of time we can answer questions, but I'm prepared to go through the remarks as well, if you wish.

The Chair: Could you just speak to the report without speaking to it line by line? Just give us a bit of an overview from your perspective, and then we can bombard you all with questions.

A/Commr Byron Boucher: I am Assistant Commissioner Byron Boucher. I oversee contract and aboriginal policing.

It's a confusing name for those of you who may not be totally familiar with it if you live in what we call non-contract provinces, like Ontario and Quebec. I oversee operations in provinces that have contracted the RCMP either as their provincial police or as their municipal police. That's every province and territory except Ontario and Quebec, where we just have federal operations.

I'll give you some context to my opening remarks in reference to our use of unmanned aerial vehicles, more commonly known as drones.

The RCMP context of using these is not at all what you would think of if you were considering what the military does with them. We pretty much use off-the-shelf models, the kind that anybody could buy. Some of them are more expensive, but only because of the equipment that is on them, such as upgraded cameras or infrared detectors.

They are basically used four different ways by the RCMP.

The first and foremost use is for accident reconstruction. When we have a serious motor vehicle accident, where at some point we're going to have to appear before the court or an inquiry, we would bring in a drone to take aerial photographs and photograph the scene in preparation for court. As an example, when we would have had to do it prior to drones, it would have cost us probably $2,000 an hour to bring in a helicopter, whereas there's a minimal cost to bringing in a drone and using it a lot of times for much less money.

The second way we would normally use them is for aerial photographs of crime scenes. If we have a major crime scene where there's been loss of life and it's happened across the span of a property, then we would do the same sort of thing in preparation for court. These are areas that would be fenced off prior to using the drone, so there's no public access. There's not a privacy concern for us in either one of those two considerations.

The third use is for search and rescue. Keep in mind that for us these drones, as we currently have them configured, will last only for about 30 minutes of airtime, which is quite limited, prior to changing a battery. There have been situations where we've had people lost in densely wooded areas, and we have been able to locate them with the use of a drone.

The final use is for what I'd call exigent circumstances, where we might have a hostage situation ongoing where there is potential loss of life, and we've had to call in the ERT. To protect ourselves and others, and to get a good view of the property and surrounding area to see exactly what the threat risk is, we could send up a drone to have that kind of view without putting any human in the line of fire.

Otherwise, with privacy considerations, we deal considerably with the Privacy Commissioner's office. I've updated them throughout our work on this file, and I have allowed them to see and feed into our policy to make sure that everything is in line. With a limited 30-minute flight time, when we think about surveillance by the police, drones are not really a tool that we would go to in our current configuration. Obviously the U.S. military or Canadian military, I'm not sure, would use them in much different ways.

● (0950)

The Chair: We'll go to questioning.

Go ahead, Mrs. Block, for six minutes.

Mrs. Kelly Block (Carlton Trail—Eagle Creek, CPC): Thank you very much. You don't know how delighted I am that I have my voice back, perhaps to the dismay of my colleagues across the table.

Thank you very much for being here this morning. I appreciate your testimony. I have taken a quick look at what was submitted by Transport Canada, so I know that some of the questions I have are probably answered in this document, but I will proceed to ask them anyway.

We've heard from a number of witnesses from the industry, and today from the Airports Council, in regard to unmanned aerial vehicles. They've made some comments around the need to facilitate alignment with other jurisdictions by looking at best practices and looking for the right balance in a policy framework.

I'm wondering if you think the requirements for commercial drone users contained in the new U.S. small unmanned aircraft rules, which is part 107, would be sufficient to mitigate the risks of drone use in Canada.

Ms. Laureen Kinney: I'll just introduce a response, and then turn to Aaron McCrorie, who is the director general responsible and who has studied it in much more detail.

First of all, let me say that we do strongly believe in aligning our jurisdictions and our regulatory processes with multiple other jurisdictions. It's important for safety that we don't have gaps in our systems that allow safety risks to creep through, and also for industry to be able to move across the border to do services, such as construction and manufacturing, etc. At the same time, we do have a different legal system. We do have particular unique features, so it's important we make sure that we address those and that we have a good strong regulatory framework.

I'll turn to Aaron.

Mr. Aaron McCrorie (Director Genral, Civil Aviation, Department of Transport): Thank you for the question.

I'd start off by saying that from an aviation safety point of view, we already have a very highly integrated approach with the FAA with the alignment for our regulatory requirements. When we drill down to the level of unmanned aerial vehicles or drones, through the Canada-United States Regulatory Cooperation Council, we are working toward harmonization or alignment. They're not necessarily the exact same measures, but rather alignment with them, and Mark is one of our guys who spends a lot of time with the FAA making sure we line up.

For the specific requirements that are in place today, the rules that the FAA is putting in place by and large mirror what we already have put in place through a series of exemptions in November of 2014 that are allowing commercial operations or non-recreational operations under certain circumstances, if they follow certain conditions.

As we move forward, opening up the ability for people to operate in built-up areas over people is where the Americans are going, and that's where we're going, but neither of us is quite there yet.

Mrs. Kelly Block: I note in your remarks that you speak to our provincial, territorial, and municipal counterparts, who are also challenged with how to ensure the safe and respectful use of this technology. I'm wondering if you could describe for us what the delineation of authority is, or what's different between the federal regulations and what the provinces are responsible for.

Mr. Aaron McCrorie: I'm not a constitutional expert, but as I understand it, under the Constitution Act aviation under the Aeronautics Act is primary, so all aviation activities fall under federal jurisdiction. The way the Aeronautics Act is written, any place an aircraft takes off from and lands at is an aerodrome, so we have exclusive jurisdiction over unmanned air vehicles. That means we need to work on partnerships with those other levels of government, and we've started outreach with municipalities, with the provinces, and especially with law enforcement, because we work very closely with our colleagues in the RCMP. They can play a critical role in helping enforce the safety regulations.

● (0955)

Mrs. Kelly Block: In his Canada transportation strategy 2030, the Minister of Transport stated that his department is also working to ensure that drones or unmanned air vehicles are subject to simple, clear, and enforceable regulations. I'm wondering if you could tell us what work Transport Canada has undertaken to date to achieve this.

Mr. Aaron McCrorie: Working from memory, in the spring of 2015 we came out with what we call a "notice of proposed amendment" that explained to Canadians what possible rules would look like. We got a lot of feedback on that NPA. We're working through that feedback now and developing some regulatory proposals that we hope to publish in *Canada Gazette,* part 1, in 2017. They cover a whole range of operating requirements, such as the requirement for a pilot to demonstrate knowledge, requirements for registration and marking, and operating rules for how and when you can operate.

What we're really trying to do is take a risk-based approach, so that if you're operating in a more complex environment with a heavier UAV, then you're going to have to meet more stringent regulatory requirements. If you're operating in a lower-risk environment, for example in rural Saskatchewan, then you'd have a lower level of operating rules and requirements that you may need to meet, but you would still have to meet some requirements.

Mrs. Kelly Block: As a follow-up to that observation you've just made, do you have the provinces, the territories, and law enforcement at the table as you're pulling all this together?

Mr. Aaron McCrorie: We bring a whole variety of stakeholders to the table, as many as we can, when we develop our regulatory packages through our regulatory process. We are, through forums such as federal and provincial forums and bilateral relationships, engaging those other agencies as well.

The Chair: Thank you very much.

Go ahead, Mr. Sikand.

Mr. Gagan Sikand: First to Transport Canada, the FAA in the United States has an app called, "B4UFLY". I was wondering if we're going to come out with something similar to that.

It's an app that allows you to know whether you're near an aerodrome or whether you can fly safely. I understand that the pilots have to have theory, but it's a lot easier if they can just quickly check on that.

Mr. Aaron McCrorie: We don't have anything right now that's comparable, but we have been looking at sharing that kind of information with the pilots.

Mr. Gagan Sikand: Thank you.

To the RCMP, for the public there are drones that are available that have an eight-hour flight time, a 100-kilometre range, and a payload of five kilograms. Ideally, for safety, I'd like those to have geofences and transponders, and for law enforcement to have drones that could intercept something like that. Could you speak to this?

Staff Sergeant David Domoney (Staff Sergeant, National Traffic Services , Royal Canadian Mounted Police): Good morning. My name is Staff Sergeant Dave Domoney. I'm with CAP, contract and aboriginal policing, as well. I run the UAV program for the RCMP.

In answer to the question, when we deal with transponders on aircraft, NAV Canada would usually answer that question, just because the power of a transponder may not be adequate to show up on an airport screen. With aircraft that travel that distance, we're continually working with manufacturers and Transport Canada to see what kind of aircraft are out there and see how we can mitigate that.

Mr. Gagan Sikand: Thank you.

The Chair: Mr. Iacono is next.

[*Translation*]

Mr. Angelo Iacono: Thank you, Madam Chair.

My first question is for a Transport Canada representative.

What resources would Transport Canada need to require the registration of all drones and to require all Canadian operators of those devices to take training, as the Air Canada Pilots Association is calling for? Why are the users of commercial drones and recreational drones treated differently under the regulations?

[*English*]

Ms. Laureen Kinney: Those are two good questions.

On the first question, we're still in the process of developing for public comment the framework that we would propose for regulations for part I of the *Canada Gazette*. Should we believe there is a safety case, it would require the registration of pilots, a higher level of training, and so on, as was outlined. Until we have framed that completely and have a good sense of where the regulations will end up, we haven't costed out the details of implementing that, but we are working on it. We are developing that. There will certainly be some costs for Transport Canada in managing that project, but we don't have those details yet.

The second question, in terms of commercial versus recreational use, is a really fascinating question. I won't go on forever, but the history of our transportation mode regulations have typically divided recreational and commercial users, because the risks were typically higher for the public. To meet the expectations of safety from the public when hiring a carrier or some kind of transportation entity, we have expected a higher level of safety.

There has been a long history of dividing the regulations that way. What you'll see in the current regulations, in a very small way, is that division. When we started developing the UAV regulations, we said, "That doesn't make sense." The issue is identifying the risks of these types of operations and the risks of the particular sizes of equipment. We decided to stop that approach, other than recognizing that the modelling association has a process in place that's very strong.

Generally, let's talk about what the risks and the mitigations are. Whoever you are, it depends on how you operate, where you operate, and the complexity of the environment you operate in. That's how we would divide the proposed new regulations. That's the approach we're taking.

● (1000)

[*Translation*]

Mr. Angelo Iacono: Thank you.

My next question is for Sergeant Dave Domoney.

Do you have policies and practices regarding the personal information gathered by UAVs?

[*English*]

A/Commr Byron Boucher: There really isn't any collection of personal information with drones. If drones are used in any particular investigative file, the information, the video, ends up on the file itself. It would be held the same way any other information is held within the RCMP, complying with all regulations. There's nothing personal about it, except that we might capture something during an accident reconstruction.

As I've said, the area is fenced off. For major crime scene reconstruction, the area is fenced off. Search and rescue is typically in a wooded area open to the public. I guess that the most you would infringe on privacy would be in those extreme circumstances where we have the potential for loss of human life. Then again, we are out in an open area. A drone is not something easy to hide. It's not really covert. There wouldn't typically be anything very personal about it, but it is all held in the file and dealt with in the same way that the RCMP deals with any other private information.

The Chair: Thank you very much.

We'll move on to Mr. Aubin.

[*Translation*]

Mr. Robert Aubin: Thank you, Madam Chair.

I would like to thank the witnesses for being with us this morning.

Since the start of our study on drones, we have talked about the positive aspects of drones, such as economic growth and new opportunities, albeit with some concern about safety and the protection of privacy.

My first questions are for the RCMP representative.

It could be the science fiction film fan in me that makes me ask this question. In your presentation, you talked about the positive aspects of drones, such as reconstructing the scene of an accident, searching for individuals, or monitoring a hostage-taking.

I would like to hear the negative aspects, the other side of the coin. Do you have to fight a new kind of crime with the advent of drones favouring the contraband market? If not, is there the potential for attacks owing to the proliferation of drones? What measures have you developed to deal with this new reality, if it indeed exists?

[*English*]

A/Commr Byron Boucher: I'll start the response to that question, and I'll ask Dave to finish off, maybe, and cover off anything I haven't.

The typical drones that we're encountering right now are the ones that have 30-minute flight times, the off-the-shelf kind. Although some have a greater payload and the technology is changing fast and distance is increasing with the fixed-wing drones, the majority are the 30-minute hobby craft. They're still a concern for us, obviously, in those kinds of protected areas where we are looking after the security of a VIP, for example. We are working extensively on countermeasures with our partners and the industry. Dave has participated in a number of research trials, also with DRDC, Defence and Research Development Canada, in order for us to look at ways to counteract any of those situations where they might pose a threat to a protected person.

With smuggling, as you mentioned, we're more than likely to see that as distances increase with fixed-wing drones. Our border with the U.S. is fairly open. I worked for many years in British Columbia, where you could just walk across the border. The need to fly a drone across wasn't terribly necessary. You could just, in the middle of the night, walk across. It's wide open. There are no fences.

We are seriously engaged in all things related to countermeasures when it comes to drones. Technology is changing fast.

I don't know if Dave wants to add anything to that.

● (1005)

S/Sgt David Domoney: I agree with those comments.

The only other thing I would like to point out is that when you deal with countermeasures, the technology in countermeasures is changing daily. In the RCMP, we have done a lot of testing with it. What we're finding is that there's no one system that is a detection, tracking, able-to-mitigate, all-in-one turnkey system. Some companies' systems are good at detection, some are good at tracking, and some are good at mitigating the threat.

With that technology, we just have to continue to monitor it, and hopefully we'll soon have something that will be able to meet that entire situation.

[*Translation*]

Mr. Robert Aubin: Thank you for that first part of the answer.

My next question will be more specific.

Has there been an increase in crime in recent years related to the use of this technology?

[*English*]

A/Commr Byron Boucher: For us, when we see these sorts of things, they're either intrusions into protected airspace around the airport—those are the kinds of things you hear of in the news—or you might get complaints from the public that there's a drone flying over their backyard or into what you would call their private space. Our method of dealing with those is by using things like the mischief section of the Criminal Code. If it is in an area where we're protecting somebody, obviously we look for the operator of the drone—with a normal 30-minute flight time, they're usually not too far away—and then we order them to bring it down. Failure to do so would be considered obstruction.

[*Translation*]

Mr. Robert Aubin: I have a brief question for the Transport Canada representatives.

Drones are not included in the Transportation Safety Board of Canada's watch list. This list sets out the various security issues that pose problems or risks. How does the department view the risks related to drones since they are not included in the Transport Canada watch list?

Mr. Aaron McCrorie: Thank you for the question.

I think you

[*English*]

referred to the Transportation Safety Board watchlist. It's based on their review of accidents and the reports they have done over the last several years. On that basis, they've developed their watchlist, which has four different items.

Within Transport Canada civil aviation, we've also taken a proactive step of identifying what we consider our four top risks from an aviation safety point of view. To a certain extent it mirrors what the Transportation Safety Board has said, but it somewhat differs. Our top risk is unmanned air vehicles. We've identified that as one of our top safety risks. Two others are approach and landing accidents and loss of control in flight, and the fourth risk area is human factors, which includes factors like fatigue and pilot fitness to fly.

From a Transport Canada perspective versus the Transportation Safety Board, we feel UAVs are one our top safety risks, and that's why we put a lot of effort into addressing them from a regulatory point of view.

The Chair: Thank you very much.

Go ahead, Mr. Badawey.

Mr. Vance Badawey: Thank you, Madam Chair.

The first question with respect to law enforcement agencies, I guess, is about the RCMP. Are law enforcement agencies aware of their current obligations with respect to the protection of privacy and security? Have any policies and practices been developed regarding the UAVs?

The second part of that question is whether there is a move afoot by law enforcement agencies to attach future recommendations to public safety, and, of course, security.

A/Commr Byron Boucher: In reference to privacy, I believe there were 775 incidents for which we used drones, UAVs, in 2014, which was the last time we ran the stats before coming down. The majority of that time was for accident reconstruction. Again, a fenced-off area—

Mr. Vance Badawey: If I could just interject, that's fine; it's great that you have that technology to use for those situations. What I'm speaking of is the person who owns a drone who flies it in someone's backyard or in front of someone's window and takes pictures inside the window. I mean things of that nature.

● (1010)

A/Commr Byron Boucher: Yes, we get calls, requests for assistance, or requests for service on files like that. In terms of developing any legislation, I think there are already sections in the Criminal Code for us to be able to charge the individual for doing anything like that.

We're working closely with Transport Canada on all things related to drone safety, but I don't know that we'd require anything else beyond what's currently there to deal with this.

Mr. Vance Badawey: I would just take it a step further. That's great that we have laws in place so that we can take care of the individual after the fact. What I am getting at is before the fact, so it doesn't happen in the first place.

Again, I'll go back to my question. Are there any recommendations, whether it be by Transport Canada or law enforcement agencies in general, that would prevent these situations from happening, whether it be a drone flying in front of somebody's window and taking pictures inside the window, or, secondly, and probably equally or more importantly, in situations where these drones carrying a weapon of some sort may go into a stadium with 50,000-plus people?

Is there technology, or recommendations for technologies, or recommendations in general, that Transport Canada or law enforcement agencies are currently entertaining to therefore prevent us lay people from having to delve into those areas? We're actually counting on you folks to give those recommendations to Public Safety so that they can be part of legislation. Is that happening right now?

A/Commr Byron Boucher: The laws in place, as I said, I think are already sufficient.

That's almost like asking if we have a law in place to make sure that someone doesn't take out a gun and commit murder. Everything is already there. It would be almost impossible, short of limiting where you can fly drones...but then again, it's another law. People will do things that they're not supposed to do no matter how hard we try to stop them.

We work continuously in serious situations—what you referred to as a drone entering a stadium that may be armed with weapons—on the national security side, to look into any incidents where we have specific targets that are capable of doing things like that and try to—

Mr. Vance Badawey: If I may, Madam Chair, I do appreciate the answer with respect to the laws and that we can react to those situations that happen.

Again, I'm going back to the proactive. Are there recommendations, whether it be to the industry itself, or actually a move afoot, to encourage that we have more effective geofencing, so that situations like that simply won't happen? Are there recommendations by Transport Canada and/or law enforcement agencies to deal with these situations before they happen, versus reacting to them after the fact?

Ms. Laureen Kinney: From Transport Canada's perspective, there is some work under way on that. For example, in our special flight operating certificates, we remind users about the requirements to follow privacy requirements, which do exist, but, as you say—

Mr. Vance Badawey: Madam Chair, if I may, I appreciate that, but tell that to the family after the fact, or to the 50,000-plus people after the fact. What I'm getting at is before it happens.

Let's face it, we have a new norm here. This is something that can be wonderful—I appreciate the economy of it—but there's also the downside of it. I would expect that you folks who are in the business would actually look at being proactive side so that it doesn't happen.

I understand that there are people who can go away to jail and all of that, after it happens—I get that—but let's not have it happen in the first place. Are there technologies, or is there encouragement to those technologies being developed, so that we can get ahead of this, versus having to react after the fact?

S/Sgt David Domoney: Sir, I think it's important to note that with the proliferation of UAVs in the airspace, this whole technology is relatively new, and it's expanding at a very large rate. Because the whole industry is so new, geofencing and detection technology is also very new. It's hard to put a timeline on when we will have a solution to that issue.

I can tell you that we are looking at countermeasure companies right now, and we're looking at the technology of that equipment. We are seeing a significant increase in what the technology can do. I am hopeful that in some time we will be able to have good detection and tracking of the UAVs.

● (1015)

Mr. Vance Badawey: Thank you.

The Chair: Mr. Hardie is next.

Mr. Ken Hardie: Following on Mr. Badawey's question of being able to keep these things out of places where they are not supposed to be, I guess, regrettably, the answer right now is no.

S/Sgt David Domoney: Some of the manufacturers of these aircraft are starting to put geofencing on their systems. An example of this is DJI, which is a Chinese company. Their UAVs, in the newest firmware upgrade, have a number of restricted airspaces in Canada that are already put into the program, so people who just buy this off the shelf wouldn't be able to fly in that area. Some companies are starting to do that.

Mr. Ken Hardie: Obviously the concern will be about the expert hacker who manages to reconfigure a unit to do things basically outside the law.

For Transport Canada, although the safety, security, and privacy piece is a concern, you're more interested in these things showing up at airports, bumping into people, and all the rest of it. Some of our earlier witnesses were talking about performance-based standards that will shape the regulation. Is that the path you're going down as well, in terms of your own thoughts on regulations?

Mr. Aaron McCrorie: The short answer is yes. We're looking at it. What we heard from the witnesses today was about performance-based design standards. We're very much looking at that. That's for the UAV itself.

Mark can elaborate on that.

Mr. Mark Wuennenberg (General Flight Standards Inspector, Department of Transport): The current regulations being proposed follow exactly that methodology. As an example, there is a design standard proposed for the construction of the aircraft itself, so that over higher-risk and complex areas it meets a higher standard of reliability.

The designs have been built on a performance-based standard. It doesn't dictate that you must do *x*; it says you have to come to this outcome. How you get there is up to you. We've taken that approach, and I believe it's similar, as our CTA representative mentioned at the meeting they held in the spring with the FAA, to their type of performance design standards as well.

Mr. Ken Hardie: What has been the quality of the liaison with the industry itself, the people who design and manufacture these drones? I think history is full of situations where some bright-eyed person creates something that goes bigger, higher, faster, farther, etc., and, as has been mentioned here, the technology can gallop ahead of you guys so quickly that keeping reasonable limits on it will be difficult. At the same time, you don't want to choke off innovation and cut off the good things that could happen.

As Vance has said, we don't want to be chasing this. I think we need to have co-operation and work very closely with the industry itself to make sure that those innovations, those developments, are happening in a somewhat manageable way.

Do we have that environment established right now, both from the law enforcement and the regulatory side?

Ms. Laureen Kinney: Perhaps I can start from the regulatory side.

I would say yes. There are very strong relationships, and have been for a number of years, as we've developed what we consider to be safety precautionary approaches and implemented them through the special flight operations certificates. That has been done in close consultation with the people using this technology. I've sat at a number of round tables and different discussions, conventions, etc. The industry is very aware that they have a lot of opportunity to do things, not just for economic purposes but to actually promote safety, and they are very concerned that it be handled responsibly. Of course, that doesn't cover every individual who may go awry, so that's why we need regulations.

I would add that it is not simply a division between risking safety for better economic opportunity. There are safety improvements with UAVs. A lot of low-level work that's currently being done by manned operations will be much safer if some of the more risky elements can be addressed by drones. A good example is in the provinces that have major forest firefighting endeavours. There is a lot of work over the next few years that they will be able to do better and with much less risk to humans, so there is a lot of safety benefit, not just a safety-economic trade-off.

● (1020)

S/Sgt David Domoney: I would also say yes to that.

We have liaised with Transport Canada, Nav Canada, and the National Research Council. We attend conferences and whatnot and deal with the manufacturers on a daily basis. I can tell you that some of the manufacturers have taken our recommendations and improved their system for the next generation. This is happening right now.

The Chair: Thank you very much.

Mr. Berthold, go ahead.

[*Translation*]

Mr. Luc Berthold: Thank you very much, Madam Chair.

I would like to return to Ms. Kinney.

I have before me the Auditor General of Canada's report 4 on the oversight of passenger vehicle safety. I will get to the drones. You will see what I am getting at.

The office of the Auditor General makes several recommendations regarding the way Transport Canada met with the various stakeholders before it published passenger vehicle safety regulations and on the way it made collision risk predictions.

There is a new technology and draft regulations are being prepared for publication in the *Canada Gazette*. One of the criticisms of Transport Canada made in report 4 is the following:

> Transport Canada frequently did not seek input from stakeholders other than manufacturers. This meant there was little opportunity for others to influence regulatory initiatives.

The following example is given:

> We found that, when developing regulations in advance of publication in the *Canada Gazette*, Transport Canada generally did not consult with stakeholders such as consumer associations, safety advocacy groups, vehicle parts and equipment suppliers, the insurance industry, medical associations, and police.

There is a new technology and it concerns all Canadians. How will we proceed? In your comments, you said that you will publish something in the *Canada Gazette* in 2017. Have you made sure that all these groups will be consulted before these draft regulations are published in the *Canada Gazette*?

[*English*]

Ms. Laureen Kinney: In terms of the UAV regulations, maybe I can step very briefly through what we have done to date to address exactly that question.

These are regulations that will affect a very large and previously unregulated population, and a variety of groups have interests exactly as you are highlighting. When we were developing our initial approach with a risk-based strategy to see where the risks were and how to address those direct risks to the public, etc., what was put together, as Aaron McCrorie mentioned, was a notice of proposed amendment.

How do we see potentially approaching this? It was developed with a whole series of what the regulations could look like to address all these questions. In some areas, it actually included questions. There were issues such as the age limit for younger people to operate these devices. We wanted to hear from people about how they felt about this.

That process was public. It was disseminated broadly. There were meetings held across different provinces. There were discussions with provincial authorities and local law enforcement authorities throughout that process. There was a very wide attempt to gather the input on the structure of what we were thinking about. That is the stage that was referred to in the audit. It was before getting to *Gazette* part I consultations.

We've done that process. We think we've done a good job of that. There has been a lot of discussion, and the education and outreaches filled that in as well. Now, when we come forward with a draft regulation and publish that in *Gazette* part I, hopefully in the spring of 2017, as early as possible, we believe that this will have encompassed many of those conversations and all the disparate views.

[*Translation*]

Mr. Luc Berthold: The way Transport Canada publishes its regulations is something new to me, you know. I still have a lot to learn. If I understand correctly, the publication of draft regulations in the *Canada Gazette* is the second consultation phase.

In a very short period of time, we have received a great many recommendations and suggestions from people who have important things to say about drones. To what extent have these people's input been considered thus far? Did you meet with representatives of the Union of Quebec Municipalities and of the Consumer Technology Association, who just appeared before us this morning?

It is possible to move quickly, but also, as you said and since it is new, it is also possible to do things properly and better than others. To that end, we need an overall picture of all aspects of the industry, including users. I think this is in a way what the Auditor General's report says.

Have you also heard the views of average citizens, people who are victims, airport boards, and citizens who are being spied on by their neighbour's drones, whose interests might be something other than photography?

● (1025)

Mr. Aaron McCrorie: Thank you for your question.

[*English*]

Again, the NPA that we produced is a very public moment to share, and we extended the timelines for consultation for that. I heard this morning, for example, on the need for registration and marking, knowledge requirements, and licensing. We've heard those ideas loud and clear, and they're well reflected in what we'll be proposing in our regulations.

The challenge we have is that there are new sectors. We've been pulling in the Canadian Real Estate Association, for example. They are not our traditional stakeholders, but we've been pulling them in and hearing from them. I think we've been very democratic, if you will, in terms of who we've heard from, and incorporating that feedback to get a balanced feedback. Ultimately it's to make sure that we have a safe system but that we also recognize the opportunities there as well.

Ms. Laureen Kinney: If I could just close on that, to go back to the process, normally the process, depending on the scale of the regulation, would have these preliminary consultations, which in this case were very large because of the special circumstances.

Then the next important phase is to publish in *Gazette* part I. The purpose of that is to provide, taking all that into account, what the actual regulations look like, so that people can then comment on a more concrete product, as opposed to ideas, which are always more of a challenge. Once it's published, then depending on the feedback we get, the determination of the period of time will be set in the regulation. Then, depending on the comments back, next steps would be taken. We could hopefully then move forward quickly, but with as good a package for *Gazette* part II.

The Chair: Go ahead, Mr. Iacono.

Mr. Angelo Iacono: I'm going to allot my time to Mr. Hardie.

Mr. Ken Hardie: Thank you.

To our RCMP members, you said you made some recommendations to the industry about what you would like to see. Can those be shared with this committee?

S/Sgt David Domoney: The recommendations we've given so far are recommendations on how to make the system better.

An example would be with one of the systems we fly. You fly it by a tablet, so you basically have a pen, and wherever you push on the screen, that's where the helicopter is going to fly. We made a recommendation to add joysticks, so that if you needed to, you could take physical control of the aircraft and fly the aircraft manually, as opposed to tapping on a screen. In our opinion, as pilots, it made it so that we had more control of the aircraft, and it increased the safety of it. The company looked at it, and they decided to implement that recommendation.

Mr. Ken Hardie: Very good.

You mentioned that there are existing laws that apply to things like privacy breaches, etc. To your knowledge, have any charges been laid? Have you charged anyone for being a peeping Tom by drone?

A/Commr Byron Boucher: I don't know if Dave knows of any. We would capture it strictly as a mischief file on the system, and we would have to pull up every single file to see if there had been a specific charge. I don't know of any specifically that would have come up that way, but maybe Dave can comment.

S/Sgt David Domoney: As I stated earlier, with the new technology, we're just starting to get more calls on that type of incident. I don't know of any charges laid at this time for the peeping Tom issue. I know that we are getting a significant number of calls for UAVs being in an area where they shouldn't be, and the public just doesn't seem to know that they can't be there.

Mr. Ken Hardie: Very good.

I'm going to turn what's left of my time over to Mr. Badawey.

Mr. Vance Badawey: Folks, I just want to drill down on this technology.

To be very specific, what kinds of technology do exist today to counter the drones that present a danger in public areas to public safety? How do we control their use at, for example, major events and situations like that?

● (1030)

S/Sgt David Domoney: Last year I entered into a project with Defence Research and Development Canada specifically to deal with countermeasures and what we might be able to use to intercept a UAV that's flying in a location that it shouldn't be. We tried everything from paintball guns to our intervention options, such as a taser, a water cannon, our service pistol, and the C8 carbine. We tried all of that kinetic response. What we found was that a net gun may be an effective tool for us.

We have looked at different net gun companies. This technology is brand new. The net guns were basically designed to capture wildlife. Now, with the UAV component, some of those companies are changing their technology. In addition to capturing animals, they're trying to increase their range to be able to capture a UAV. We also tried jamming technology.

We came up with a recommendation for the RCMP through the DRDC project. At this time, with the technology the way that it is, an effective response would be either a net gun or jamming technology.

Mr. Vance Badawey: Do you find that it would be more prudent for us to count on the industry to come up with more advanced technology, or would it be prudent for us, as government, yourselves, Transport Canada, or others to come up and innovate that kind of technology?

S/Sgt David Domoney: What I've found today is that we need to look at both, because they are working on it at the same time, but because of the issue in front of everybody right now with drones, I think that companies themselves are working at a faster pace.

Mr. Vance Badawey: I think, for the most part, especially with the Christmas season coming around, if you think you have a challenge now, post-January it's going to be a huge challenge.

My last question is with respect to liability. I hope it it never happens, but if it does happen, and I expect it may, who would shoulder the liability?

I guess this would be more for Transport Canada. Who would shoulder the liability, or exposure to that liability, when these kinds of situations occur?

For example, suppose pictures are taken of someone's house. They are not very appropriate and they end up on the Internet. It's worldwide, and you can't control it. Or it could be with public safety: something happens in a stadium. Something goes off and people get hurt. Who is exposed to most of the liability here?

Ms. Laureen Kinney: If I can just start off on that, you're talking about a variety of different kinds of liability, obviously. Not all of them are within Transport Canada's purview. In particular, we have looked at the liability for danger and damages that might be caused by their operation, in a more general sense. There are some provisions that we've put in place to partially address that at least, but not necessarily on the broad scale.

Aaron, do you want to go into that?

Mr. Aaron McCrorie: From an aviation safety point of view, whether we're issuing a special flight operating certificate or whether it's within the proposed regulations, we are going to have insurance requirements to cover those liability issues. It's outside of our mandate to deal with some of the other liability issues that may be there.

The Chair: Thank you very much.

Mr. Rayes is next.

[*Translation*]

Mr. Alain Rayes: Thank you, Madam Chair.

My questions are for the Transport Canada representatives.

In your speech, you said that your provincial, territorial, and municipal counterparts are also struggling to find a way to make sure that this technology is used safely and respectfully.

I am a former mayor of a municipality of 45,000 people. At that time, we had a lot of concerns about protecting privacy, especially as regards citizens using surveillance cameras. That was even before drone use became widespread.

Moreover, our clerks did not have much information about this when we had to manage security and privacy issues involving the use of surveillance cameras. We were not even talking about drones, but people were saying that something was certainly going to happen. They also wondered who would manage the issue, the Sûreté du Québec, municipal police, or the RCMP.

My first question is as follows. Which municipal stakeholders have you consulted, whether organizations or individuals? I would like to know a bit more about this because, to my knowledge, it has not been discussed in Quebec, at least not at the two municipal groups.

● (1035)

[*English*]

Mr. Aaron McCrorie: Our primary interaction has been through organizations such as the Federation of Canadian Municipalities. When we did the round tables across the country last year, it was an open invitation. In some instances—I think it was Winnipeg, for example—the City of Winnipeg showed up. However, to date, our primary interaction has been through forums like the Federation of Canadian Municipalities.

Ms. Laureen Kinney: If I may add to that, through our provincial, territorial, and federal council for ministers of transportation there have been various levels of conversation through that forum as well with the provinces. As noted, there have also been individual conversations with the municipalities.

[*Translation*]

Mr. Alain Rayes: My question is for Mr. Boucher or Mr. Domoney.

As regards safety, do you have discussions with your counterparts on other provincial or municipal police forces?

[*English*]

A/Commr Byron Boucher: We have considerable discussions ongoing with all of our provincial, territorial, and municipal partners about issues of concern for them in priority-setting for law enforcement for a particular year. At this point in time, drones or UAVs have not come up as a hot button issue.

As we're discussing this, internal to the organization, I've explained the ways we use them. Going forward, obviously one of the most important things for us is the way to control them when they get into those restricted areas or areas where they are infringing on the privacy rights of another citizen. That control factor, or those countermeasure factors, are where we're headed next, and we're really pushing hard with industry and other government agencies.

[*Translation*]

Mr. Alain Rayes: As regards public safety for airports and businesses, I am not worried about you finding the right regulations or procedures. At the municipal level, however, my first reaction is to say that there could be a number of problems.

At events held in the municipalities, for instance, people often use drones for recreational purposes, whether to fly over a site or to take pictures and videos. There could be risks, however, when there is a crowd or a mob. Consider the summer festival in Quebec City where 100,000 people gather on the Plains of Abraham.

I have a number of concerns in this regard. Does this enter into your thoughts or your preparations in order to give tools to the municipalities?

Among municipal by-laws, police security, and Transport Canada security, I think people's natural reaction is to say it is under federal jurisdiction, that it is their problem, everyone washes their hands of it. Citizens, however, will turn to the municipality, the municipal council or the mayor in search of a quick solution. The objective is something effective for companies and individuals.

[*English*]

Mr. Aaron McCrorie: That's really the heart of our new risk-based approach to regulating unmanned aerial vehicles.

Regarding the distinction between whether you're operating for commercial or recreational reasons, we're dropping that distinction. If you're operating a heavier drone that poses a greater risk to people on the ground or aircraft in the air and you're operating in a more complex environment—for example, Quebec City during a festival—there are going to be much more stringent operating requirements to comply with, including design standards for the UAV, licensing requirements, marking and registration requirements, and limits on how and when you can operate. If you're operating in a lower-risk environment with a smaller drone, then the operating requirements and the regulatory requirements would be lower.

Having those clear regulations in place gives our partners in law enforcement, or even our own inspectors, the tools to go after people who behave irresponsibly in those situations.

Our focus isn't just on the airport. It isn't just about the aircraft in the air. It's also about people on the ground.

Ms. Laureen Kinney: I would add that I think there is a whole area that is being referred to.

As you start to expand beyond the safety requirements and how you operate such a piece of equipment safely and you get into the approvals of an event, for example, at the city level or the municipality level, or at another level, you're going to need to connect the dots and make sure that we are having that kind of a conversation when you get into the bylaw development that a number of communities are looking at, or when you talk about the commerce that may go on with drones operating in city areas and perhaps operating in a city's residential areas.

We're looking at the safety and we're looking at all those issues, but we do need to work together on that. There are beginnings of conversations on that, but there is more work to be done.

● (1040)

[*Translation*]

Mr. Alain Rayes: Thank you, Madam Chair. I have no further questions.

[*English*]

The Chair: We are coming to the end of our meeting. I expect the bells will also be going off.

Does anybody have a short pressing question that didn't get answered?

Mr. Vance Badawey: It's very short. Thank you, Madam Chair.

Going back to Alain's comments earlier about those municipal bylaws, I think the biggest challenge is whether federal legislation or federal law supersedes a municipal bylaw.

Ms. Laureen Kinney: Without wanting to dive into that in depth, there is going to be a challenge as we work out which areas we are talking about that are being addressed. If a bylaw were to be addressing—and, again, I'm not a lawyer—those areas of federal jurisdiction, such as a safe operation, then there would be an issue. I think we need to work with communities on how they can look at the retail issues, because our jurisdiction doesn't necessarily go to business licences for someone who wants to deliver packages. I think there is a fairly complex area that needs more work.

Mr. Vance Badawey: That's a great point.

In effect, a discussion can be had, and the recommendation from that point is that we would embed in federal legislation that it would give the opportunity for municipalities to have that and have it be effective by being enforceable.

The Chair: Mr. Berthold, did you have a comment you want to make?

[*Translation*]

Mr. Luc Berthold: Thank you, Madam Chair.

I will finish what I was saying earlier.

Transport Canada will be presenting draft regulations that will appear in the *Canada Gazette* very soon. I think the committee would very much like to review them as soon as possible. We have made progress with various witnesses, but the regulations that the department wishes to establish are a very important topic of study for our committee.

Will you simultaneously make available the resources that will be needed to implement these draft regulations? How much will it cost Transport Canada to implement them?

[*English*]

Ms. Laureen Kinney: First of all, we are still in the development of the drafting of the regulations, and there are a number of sections. Based on what I understand of your timelines, they wouldn't be available even in a draft form within that timeline, but we would certainly be taking into consideration the comments and the report that is provided in the finalizing of those elements. That's one part.

The second part is that we still will need to refine what the costs will be, but we are highly committed to delivering a safe regulatory regime for this area. We'll need to look at how we manage to do that, and we will do that.

The Chair: Thank you very much.

Thank you to all of the witnesses. We have received very valuable information today that hopefully will find its way into our final report.

Thank you all very much.

The meeting is adjourned.