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Empirical research report, May 2017

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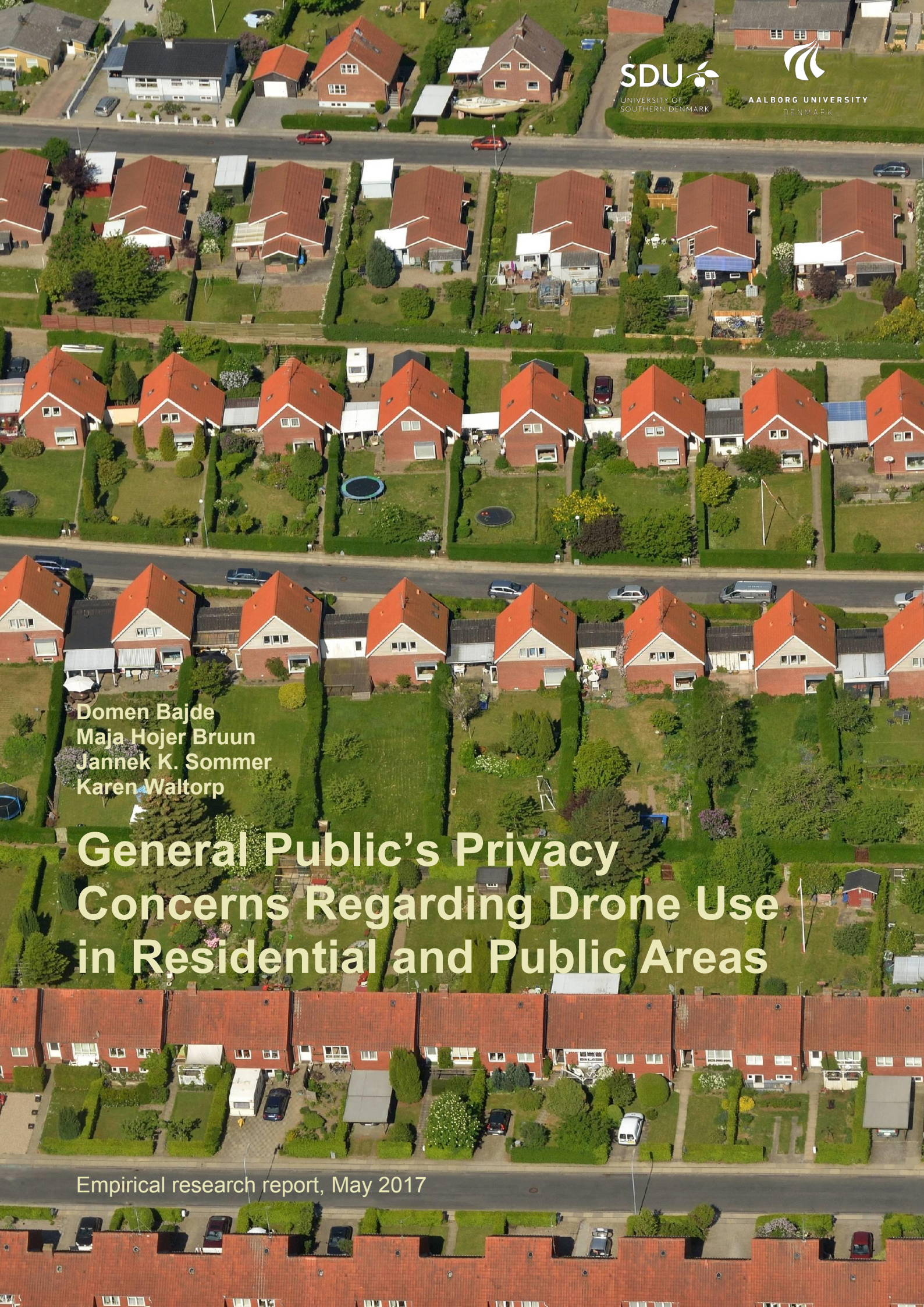

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Colophon

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Dansk resumé

Rapporten opsummerer første del af et forskningsprojekt mellem Syddansk Universitet, Aalborg Universitet og Trafik-, bygge- og boligstyrelsen. Forskningsprojektets formål er at få indsigt i offentlighedens viden om og holdninger til droner, tanker og bekymringer vedrørende brugen af droner i bolig- og offentlige områder, især med hensyn til beskyttelse af folks privatliv, samt synspunkter omkring regulering og lovgivning. Rapporten præsenterer de væsentligste fund, der er opnået via seks fokusgruppeinterview udført i København, Odense og Aalborg med i alt 58 deltagere.

Fokusgruppedeltagerne tilkendegav deres holdninger til droner, der strakte sig fra tolerant negative til tilbageholdende positive holdninger. På tværs af dette spektrum var deltagerne opmærksomme på potentielle farer og mulige former for misbrug af droneteknologi, og der kunne identificeres tre former for overvejelser i forbindelse med privatlivets beskyttelse: For det første blev der udtrykt bekymring for, at droner kan tage upassende billeder eller opfange personlige oplysninger, særligt i nærheden af private områder, f.eks. folks boliger. For det andet var der bekymring for, at droner kan trænge ind i folks privatsfære og forstyrre gennem fysisk tilstedeværelse eller støj. For det tredje var der i sammenhæng med begge disse overvejelser en generel bekymring for ikke at kunne vurdere og kontrollere situationen. Desuden efterlyste deltagerne mulighed for at indhente viden og informationer om 1) overflyvende droners tekniske egenskaber og formåen (især hvis der er et kamera påsat, som er i stand til at producere billeder af høj kvalitet), 2) dronernes formål (transport/udbringning, redningsaktioner, luftfotografering el.lign.) og 3) hvem der kontrollerer dronerne. Flere af deltagerne gav udtryk for, at disse oplysninger var afgørende for, om de oplevede en drone som forstyrrende for eller krænkende af deres privatliv.

Bekymringer vedrørende privatlivets fred varierede således betydeligt i forhold til de forskellige kontekstafhængige faktorer (hvem, for hvilket formål, hvor, hvordan). Det er ikke ligegyldigt, om en drone flyver hurtigt forbi eller svæver foran én, så man kan blive iagttaget. Desuden udviste deltagerne større tolerance over for børns end over for voksnes brug af droner samt en større grad af mistillid over for hobby-brugere end over for professionelle brugere.

Det private rum, karakteriseret som private boliger og områderne i nærheden af boligerne, blev generelt forbundet med flere bekymringer end offentlige steder såsom parker og gader. Flere deltagere udtrykte ejerskab af luftrummet over deres grunde, dog med stor variation og fortolkning af rummets dimensioner (f.eks. op til huset, op det højeste træ eller flagstangen). Uindbudt og uanmeldt droneflyvning i disse private områder betragtede deltagerne som ulovlig indtrængen, især hvis der var tale om langsomt svævende droner og særligt, hvis dronerne bar kamera eller andre former for optageudstyr.

Deltagerne havde et generelt og meget overordnet kendskab til den eksisterende, relevante lovgivning (f.eks. persondataloven og straffelovens regler om privatlivets fred), men de var usikre på, hvilke love og regler, der gælder for flyvning med droner. De fremkom med forskellige forslag til regulering med henblik på at imødekomme de fremførte problemer, situationer og scenarier.

Contents

1 Introduction

1.1 Purpose and research questions

While privacy risks associated with modern technologies tend to be less visible to citizens (e.g. capture and flow of online data), drones represent visible and audible machines. When confronted with a drone, people may feel threatened and observed, regardless of whether that is actually the case. Therefore, drones may well cause a fundamental shift in the public's understanding of privacy concerns in relation to modern technology (Calo 2011).

Currently, there is limited empirical research that would indicate what kind of concerns citizens have, how intense these concerns are and how they might differ across different contexts. Answers to these questions are of the utmost importance in developing regulatory frameworks that would respect the public's concerns, while also allowing private companies, public organisations and drone hobbyists to enjoy the benefits of drone technology.

This report summarises the work conducted during the first phase of a collaborative project between the University of Southern Denmark (SDU), Aalborg university (AAU) and the Danish transport, construction and housing authority (TBST). It provides an overview of the work process and the main results of six focus group interviews. For the purpose of this report, the word ‘drone’ refers to partly autonomous flying vehicles, used for non-military purposes (i.e. civic or commercial drones).

The main research goals were to gain insight into: 1) the public’s knowledge and attitudes towards drones, 2) the public’s privacy concerns regarding drone use in residential and public areas and 3) the public’s viewpoints on drone regulation. These goals were translated into the following research questions:

- What do people know and assume about drones?
- What privacy concerns do people have regarding drones?
- What are their viewpoints in regard to drone regulation?

The project was initiated by TBST and conducted by researchers at SDU and AAU. All three institutions contributed jointly to the funding of the project.

1.2 Study design & methods

The research project began with desk research, reviewing existing studies of public perceptions of drones and drone-related privacy concerns. The research team also reviewed press coverage of commercial drones and drone-related privacy concerns in the Danish press in the period between

2012 and 2016 (761 articles were located and reviewed). These reviews expanded the team's understanding of the issues at stake and served as an information source for our subsequent collection and analysis of data[1].

The core empirical research activity carried out consisted of focus group interviews with ordinary citizens. Our research design followed Chandler and Owen's (2002) analytical or cultural approach to focus group research, with a focus on shared cultural meanings, that is on culture as a framework from where individual sense-making and action takes place (Catterall & Maclaran, 2006). Despite the steady increase in sales of commercial drones in recent years and a significant increase of registered professional drone operators in Denmark, the percentage of people who own drones or who are professionally engaged with drones remains small. Our study therefore focuses on people with limited direct experience with drones. The exclusion of people with an extraordinarily high level of knowledge and experience with drones was meant to ensure that non-experts could openly interact and share their personal views.

The participants were recruited from the research firm Wilke's panel consisting of 35,000 Danish residents. The prospective participants were systematically screened to ensure a diverse sample structure across age, gender, education, region and type of residence (house vs. apartment), and absence of prior relationships between participants. Six focus groups with 8-10 participants (58 in total) were conducted in 3 Danish cities (2 in Copenhagen, 2 in Odense and 2 in Aalborg). The groups were organised according to age. Three focus groups were conducted with 18-39 year-old participants, and three with 40-65 year olds, so that both age groups were represented in each of the three chosen cities.

The interview sessions typically lasted 2 hours. They were video-recorded (12 hours of video footage in total) and transcribed verbatim (approx. 300 pages of transcripts in total). The transcripts were analysed via content analysis and in-depth thematic interpretation (Raibee 2004).

1.3 **Description of focus group participants**

In total, 58 individuals participated in the focus group discussions. Table 1 presents the structure of the sample according to age, gender, education and type of residence. The sample corresponds approximately to the structure of the respective Danish population, with the exception of education, where the proportion of people with higher education is larger in our sample than in the Danish population at large.

The purpose of the study was not to measure drone attitudes and concerns on a representative national sample, but rather to qualitatively capture the diverse viewpoints and sentiments held by Danish residents. Accordingly, the sample structure effectively ensures the necessary diversity across age, gender, education and type of residence.

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[1] The literature review shows that empirical investigation of the chosen topic is rare. Empirical studies have been conducted in Australia (Clothier et al. 2015), USA (Wang et al. 2016), UK and Italy (Boucher 2016), yet they all look at public perceptions of drones in general, as opposed to investigating privacy concerns in depth. Existing research on drone-related privacy matters is of a theoretical nature, and does not offer empirical data on public perceptions and concerns. The Danish media review shows that drone technology is generally framed sympathetically, with a focus on professional use in contexts such as 'search and rescue', 'transport', 'inspection', and various forms of 'visual production' like photography. A small number of articles revolve around privacy transgression, usually unsolicited recording in and physical intrusion into private space.

		Number of participants	Share of participants (%)
Age	18-29	15	25.9
	30-39	13	22.4
	40-49	16	27.6
	50-65	14	24.1
Gender	Female	31	53.4
	Male	27	46.6
Education	Primary education (grundskole)	6	10.3
	Secondary education (ungdomsuddannelse)	4	6.9
	Vocational education (erhvervsfaglig uddannelse)	9	15.5
	Higher education (videregående uddannelse)	40	69.0
Type of residence	Apartment	26	44.8
	House	32	55.2

Table 1. Sample structure

2 Findings

We have organised the findings into three sections, which cover the participants' knowledge and attitudes towards drones, their perceptions regarding privacy matters and their viewpoints on drone regulation. Our summary of findings across these three core themes includes several quotes from the interviews, which are meant to illustrate the ideas expressed by the participants in their own words. Quotes are translated from Danish and all participants are anonymised.

2.1 Knowledge and attitudes about drones

Participant experience with drones typically entails seeing drones in documentaries and movies, or hearing about uses of drones from local media. First-hand experience is less common and typically involves observing family members, friends or neighbours using toy drones, or being exposed to a drone flying by. The participants are not sure what exactly qualifies as a drone, but typically assume that drones are remote-controlled flying vehicles that can be equipped with cameras (common comparisons to remote-controlled model airplanes or cars, and "flying cameras"). Some participants are aware of the capacity of drones for autonomous flight (in a similar way to robots and autonomous cars), but this capacity is less well understood and less central to the participant's discussion of drones. Although many participants do not have exact knowledge of what drones can and cannot do (e.g. flight time, speed, altitude, sensors), their imagination is spurred by stories of innovative uses and the continuous advancement of drones and other advanced technologies (e.g. robots and autonomous cars).

The participants have diverse attitudes toward drones, ranging from tolerantly negative to cautiously positive. Tolerantly negative participants see drones as a technology that has a high cost to society (e.g. safety and privacy issues), but are willing to tolerate drones insofar as they truly benefit others and society overall. Cautiously positive participants recognise the benefits of drones over existing arrangements, but remain wary about the potential dangers and misuses.

> *"You also need to think about something like labour. There must be someone to look after them (drones), but on the other hand, they also take a lot of labour away. It can really damage a country, and so that's something you have to think about." (Simon, 24, Focus group 3)*

> *There's also a huge difference between whether you are in a public place, or whether someone is recording inside your home. I simply cannot find any reason for that. Drones flying in public spaces, and especially those without a camera, I think it's totally ok with me. In public, they may just as well dance in front of the windows for all I care." (Eva, 47, Focus group 6)*

"In common house fires, you can get an overview of where the fire is. Where exactly to make an effort to fight off the fire. That is a very, very useful thing, I think. But then of course, everything can be misused? "(John, 55, Focus group 2)

Most people's immediate responses are at the personal level, and take as point of departure how the individual participant feels or anticipates he would feel about drones, if he encountered one. Most significant in these responses is a greater tolerance of drones *on the condition* that one would be able to get information (e.g. drone controller, presence and capacity of camera attached) about the drones flying in the vicinity of one's home and (less urgently) in public places.

In all cases, participants feel ambivalent towards drones, and situational factors play an important role in shaping their attitudes toward drone use. People wanted to know *who* was responsible for the drone and what the *intention* was behind flying it. Whether or not the drone had a camera attached or not, and the quality of the photos it could take from different heights, were of utmost importance to people in general across the groups.

Participants were generally very positive about drones as harmless toys used by children, but became much more apprehensive when it comes to camera-equipped drones used by adults.

"I don't think children have bad intentions. They just think it's good fun to control something they're not holding in their hands. It's the curiosity, I think, that they find exciting. So, we've just come a little further than remote-controlled cars." (Vivi, 35, Focus group 3)

There is also a higher level of tolerance when it comes to the use of drones by 'public service' organisations or drones that perform clear and valuable tasks.

"Well, drones are 'workhorses' for anything that's not immediately accessible. Like flying into a nuclear power plant in connection with an emergency, so you don't need to send in a person and put him at risk. Large companies in the United States have begun working on package deliveries and other stuff. Flying around and providing internet and network where access is limited… They have drones with 4G network, which you then connect to. "(Christian, 48, Focus group 6)

Among the most problematic risks and downsides of drone use, participants mention privacy and safety concerns (commonly mentioned before being probed for this particular issue), and to a lesser degree also damage to property. As detailed below, concerns regarding privacy are very much associated with limited knowledge of drone use – and a wish to be able to easily access information about the specific uses of drones (in the form of an app or the like).

2.2 Perceptions of drone-related privacy issues

Participants are worried foremost about the inappropriate use of cameras in private areas (participant definitions of these are discussed below).

We distinguish between three forms of privacy concerns expressed by the participants. Firstly, there is the concern that drones will capture inappropriate images (primary concern) or information about individuals. We could call this 'visual-information privacy'.

”But, what if your wife or girlfriend happens to be lying topless in your garden, and a drone takes photographs from above?” (Vivi, 35, Focus group 3)
"I don’t think I would mind small drones without cameras. But if we are talking about the larger ones with cameras, then I would mind, at least if they flew around where I am." (Simon, 24, Focus group 3)

"It turns into a bit of a surveillance society, doesn’t it? You can just send one up and you can just... Lying in the backyard without clothes, that’s going to slowly die out." (Andrea, 40, Focus group 6).

”And then it won’t be long before it’s all online… We see that a lot these days…” (Eva, 47, Focus group 6)

Secondly, there is a concern that drones will intrude into one’s private space, and disrupt what we could call ‘spatial privacy’ via an unwarranted physical presence or noise.

”Well, I wouldn’t like it if the drone got too close. I really wouldn't, that’s for sure.” (Sofie, 60, Focus group 5)

Thirdly, together with both of these privacy concerns, there is an overall frustration with not being able to assess and control the situation. The participants foresee that a lack of information about the kind of drones flying by and their purpose will cause anxiety and ontological insecurity among people, because they simply have no insight into whether or not their privacy is being violated.

“For me, it’s like this: if it just flew by, I wouldn’t mind, but if it’s like, several times a day, or if it flew around for some time, that would annoy me. Unless, I don’t know, unless it had a label or something [...] so I could clearly recognise it. Then it would be different. Then I wouldn’t mind. I would consider it safe.” (Markus, 36, Focus group 1)

"Right, and what about the municipality? They are already snooping around, concerned with whether you do indeed live alone or not. Will it be used in this respect as well? Besides having to worry about the neighbour..." (Pia, 45, Focus group 6)

Throughout the focus group discussions, it became clear that the participants try to assess the capacities of the drone (in particular if there is a camera capable of capturing high quality images), the purpose for which the drone is used and who is controlling/using the drone. If a person is exposed to a drone in a private environment (in a private garden, close to windows and balconies), the inability to assess the situation and respond accordingly heightens the sense of intrusion and increases the perceived risk of the violation of informational privacy. In addition, this inability is a privacy-disturbing experience in itself, especially when it comes to technologically complex flying objects.

The level of concern varies considerably according to the context in which drones are used (who, for what purpose, where, how). It makes a big difference whether a drone is merely flying by (low level of concern) or a drone is hovering over one’s dwelling/garden for a longer period of time (high level of concern, feels like being ‘targeted’), since this also enables the drone to film and take pictures better. The faster the movement, the lower the privacy concern.

"But if the drone quietly hangs in the air just outside your window and waits for you to open the blinds, then... - even though it's the neighbour's son. No one really has any business being on the 1st floor right outside your window." (Heine, 45, Focus group 2)

"I would feel suspicious, I think. If it just hung there, I think I would wonder about it, if it stopped moving. I would also wonder if I lived on the ground floor and someone didn't just pass by my window, but stopped instead. Then I would wonder: "Hey, why are you standing there?". (Nikolaj, 48, Focus group 5)

Concerns are lower with regard to public places (parks, streets) and much more acute in relation to private spaces, commonly defined as private house gardens or spaces close to houses/apartments that offer a direct view into the dwelling.

"I'd also like to add that in the case of carnivals or concerts, or other public events, I don't mind drones flying around, because camcorders are already all over the area [...] But at home in my garden, no, there I'd probably consider having a slingshot available." (Lilly, 52, Focus group 6)

Participants are very forgiving when it comes to children using drones, and they see it as the parents' responsibility to control their children's drone use:

"If it's a 5-6 year-old boy who just got a drone and he is out with his mum and dad to try it out under supervision, I don't think the parents would need the drone to have a camera. I don't assume there are cameras attached when you buy a drone for that kind of thing. That's something you need to add onto it yourself... So, I just think that it's a toy much like a remote-controlled car, and who doesn't think that remote-controlled cars are nice but also annoying at the same time? I suppose it's a bit like that... If there's no camera attached, it's just like a remote-controlled car. It's both annoying and good fun." (Andrea, 40, Focus group 6)

"Well, now if it's the neighbour… They should know the legislation before they allow their cute 5-year-old to fly a drone. In that case, they should know that the drone is not supposed to enter my property. Of course, if it flies over the hedge briefly and back again and it's something you see… Then you could just think 'oh well, okay'. But if it's through the window and it constantly buzzes around you, then it's the parent's responsibility. You can't see right away if there's a camera attached, right?" (Lilly, 52, Focus group 6)

On the other hand, the participants are more distrustful of adult hobbyists than professional users, who they expect to have more expertise and to be better regulated. Professional use becomes even less problematic when a clear purpose for a professional drone use exists, and is known about by the resident (see quote in 'Knowledge and attitudes about drones' by Eva, 47)

Privacy concerns are heightened in special conditions of vulnerability, such as being nude, changing clothes, etc. There seems to be increased concern among women regarding the potential loss of privacy, or private space, and of not being secure from the gaze of others (via drones): Be it over the hedge from an overflying drone, or in one's apartment with a drone peeking in the window or in a public place, e.g. a beach. Both men and women are concerned about women's nudity, as reflected in the quote above: 'if your wife or girlfriend was lying topless'. Thus, this is a highly gendered concern.

"I don't want to be watched in my garden if I run around naked. It happens, right…? That's something you might want to think twice about. And you might be doing other stuff than running around naked, if you feel like it. And then it's suddenly public and you're exposed. So, I want my private space. In public, they can watch me for all I care." (Lilly, 52, Focus group 6)

2.3 Viewpoints on drone regulation

The participants mentioned several regulations aimed at protecting their privacy and (to a lesser degree) regulating the use of drones as such. They discussed existing relevant and related privacy rules (x, y and z) and how their application would be felt in new and uncommon situations such as drone use. There is a widely-held assumption that people are free to use drones in their own gardens. Participants commonly expressed a sense of ownership of the air space over their properties, with varied interpretations as to how high 'their' space reaches (e.g. up to the roof of the house, the tallest tree, the flag pole). Unannounced, unsolicited intervention into this space is experienced as an intrusion, particularly if it is of a more permanent nature (drones hovering) and if it involves the use of camera recording devices.

"It should be a right that people aren't allowed to fly on your property…" (Sofia, 21, Focus group 3)

"I think I would be suspicious if it just hung there. I think I would wonder why it stayed. I would wonder too if I lived on the ground floor and someone didn't just pass by my window, but stopped. Then I would wonder, "why are you standing there?"." (Nikolaj, 48, Focus group 5)

When asked to provide suggestions regarding the regulation of drone use, the participants discussed different possible rules that would cover the varied situations, but they rarely thought these possibilities through to actual legislation. What becomes clear from their discussions is that existing normative and legislative rules as to what is appropriate, and what rights and obligations people have, fail to fully cover the problems that people expect from future drone use. For example, participants, struggle to move from two-dimensional (horizontal) conceptions to three-dimensional conceptions. They are not used to thinking of privacy 'vertically', and find it hard to explain what a reasonable privacy zone would be in terms of altitude.

"But how close to a house should it fly then? I guess we are talking one, maybe a couple of metres from the house? It's difficult to say…" (Vivi, 35, Focus group 3)

Christian: "Well, I could ask you a question about that, because how far does your property extend upwards?"
Lilly: "All the way up to the sky. Ha ha. No..."
Christian: "So that's what I'm a little doubtful about. How far up do you own the air?"
Lilly: "Way up. I don't know."
Eva: "That's a really good question."
Lilly: "There's something to it, I mean, airplanes are also overflying."
Dennis: "So, that's what I'm trying to say, some places you don't own at all. If you live near an airport, you don't own it at all. "
Christian: "Right, then you don't own it."
(Christian, 48, Dennis, 59, Lilly, 52, Eva, 47. Focus group 6)

Suggestions for minimum altitude regulations range from 50m to head-height. Their thoughts on minimum altitude regulations are coloured by questions of camera recording quality, where an acceptable height would be the one that prohibits high quality image capture of the residents.

> *"So, if you go up far enough, it doesn't matter what kind of camera you have, because you can't zoom in close enough. So, I don't think I would mind if drones flew 30 metres above my apartment. Now, since I live in an apartment, they would need to hover outside my window to see what I'm doing. If I'm outside in the yard, I'm out in the open and should assume I'm being watched. "(Kenneth, 24, Focus group 3)*

> *Lilly: "It must be so high up that it can't record my garden."*
> *Dennis: "You aren't permitted to fly overhead if you are a private person. According to the law we have today, you can't overfly at all."*
> *Lilly: "As long as they don't record, they can overfly. Then they can even fly quite low. But the moment it's recording, then they just can't. They would need to be very high up, so that they can't record anything."*
> *Eva: "Beyond your roof?"*
> *Lilly: "Yes."*
> *Philip: "It should be so that they don't bother you with noise, and that they're not posing a risk."*
> *Andrea: "Right, you must at least be sure that it doesn't crash."*
> *Lilly: "It's gonna hit hard."*
> *Eva: "It would really be awful having a drone crash on your head if you're naked in your garden. Haha."*
> *Pia: "Well, if it crashed on your head, then at least you would have caught it."*
> *(Lilly, 52, Andrea, 40, Dennis, 59, Eva, 47, Pia, 54, and Philip, 53. Focus Group 6)*

There are repeated suggestions aimed at reducing the problematic lack of information by helping people to identify drones and their purpose (presence of camera, purpose of use, controller) via mobile apps, designated websites, colour schemes, warning signs in zones where drone filming is allowed, etc.

> *"You could give them colours like with ambulances. If it's neon colours then you would know it's from the city, and if it's neon orange, it's regional or something. So, the fire department could be neon red, and all private drones are like these (points to a small civic drone on the table). Then you would be able to tell them apart." (Simon, 24, Focus group 3)*

> *"If it was required for drones of a certain size to have some sort of recognisable features, like airplanes do, then you could check on an app 'it's so and so and it's coming from that place…' " (Markus, 38, Focus group 1)*

Considerable emphasis is being placed on self-regulation, in particular when it comes to hobby use of drones. In these cases, there is a willingness to discuss and reach consensus in individual cases, as long as people conform to general rules of good neighbourly conduct and devote effort to educate their children accordingly.

> *"It's also common sense not to create a problem if there isn't one. You've got to think "what would the neighbours think" and then start a dialogue… I think you solve things better that way." (Andrea, 40, Focus group 6)*

"It's really an ethical matter. You can always warn if you do something or want to do something right outside other people's windows. Because it may be distressing, depending on the size, the noise, and all that." (Sofia, 21, Focus group 3)

"But no matter what, I would see if there was a person I could contact, see if someone was there in plain clothes and acting normal [...] But if I bought a drone for my children, I wouldn't just say "Right, you can just fly it in the garden", because we are surrounded by gardens. Then it's over to the sports ground instead. You really need to get into the rules, because it can quickly become very offensive to someone else." (Kristian, 28, Focus group 1)

Overall, drones tend to be seen as an 'inevitable' or 'unavoidable' technology of the future, towards which a certain tolerance is required, yet only for as long as a clear and sensible regulation is imposed by the state, and good neighbourly behaviour is exercised by citizens themselves.

"Well, there's good things about drones. They can be used for many sensible things. And they can also be misused. I think that's the case with technological development, we need to learn to master it the best way and mitigate negative consequences. I think it would be difficult to ban it and just say "you can't use that". Because the pressure is on, technology gets cheaper and cheaper and gets easier to acquire." (Eric, 52, Focus group 5)

"I also think it's because we know that it's a technology we can't stop, and everyone can see the good things it can be used for, right?" (Julie, 42, Focus group 2)

"If you're sending a robot that can take pictures for you I think it needs a completely different kind of problem-solving... So, this is a technology where we don't really know where it will lead in the end, unless the rules are in place from the beginning... But I can be standing 500 metres from somewhere and observe on a screen, sending the drone out to take a picture. I think it's important that there are strict and clear rules from the beginning with things like these." (Oliver, 41, Focus group 6)

Somewhat paradoxically, some focus group participants thought that if *more* data about flying drones becomes readily available to them, this could be an answer to their fears of other people capturing *their* data, and photos, both in public and in private.

3 Conclusion

3.1 Summary

This report summarises the work conducted during the first phase of a collaborative project between the University of Southern Denmark, Aalborg University and The Danish Transport, Construction and Housing Authority. The research aims were to obtain an insight into the public's knowledge of and attitude towards drones, into the public's privacy concerns regarding drone use in residential and public areas, and into the public's viewpoints on drone regulation. The report summarises the main findings obtained via six focus group interviews conducted in Copenhagen, Odense and Aalborg, with a total of 58 participants.

The participants expressed diverse attitudes toward drones, ranging from tolerantly negative to cautiously positive. Across the spectrum, the participants were wary about the potential dangers and misuses of drone technology. With respect to privacy concerns, they were primarily concerned that drones will capture inappropriate private images or other personal information when flying in residential areas. In addition, it was found that the inability to assess the capacities of the drone represents a privacy-disturbing experience in itself (e.g. not knowing if there is a camera, for what purpose the drone is being used and by whom). The interviews show that privacy concerns tend to be influenced by various contextual factors, which in addition to a drone's recording capacities, purpose of use, and the identity of the controller/user also entail the question whether a drone is flying by or hovering over one's private space. The study also indicates that the presence of drones opens up new questions regarding the boundaries of private space.

3.2 Limitations and future research

The purpose of this exploratory study was to qualitatively capture the diverse viewpoints and sentiments held by Danish residents, who are neither experts nor avid drone hobbyists. Future research is needed to observe people's response to drones in everyday life and natural settings in order to expand on the results of this study.

4 List of References

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