Interreg Baltic Sea Region

Co-funded by the European Union

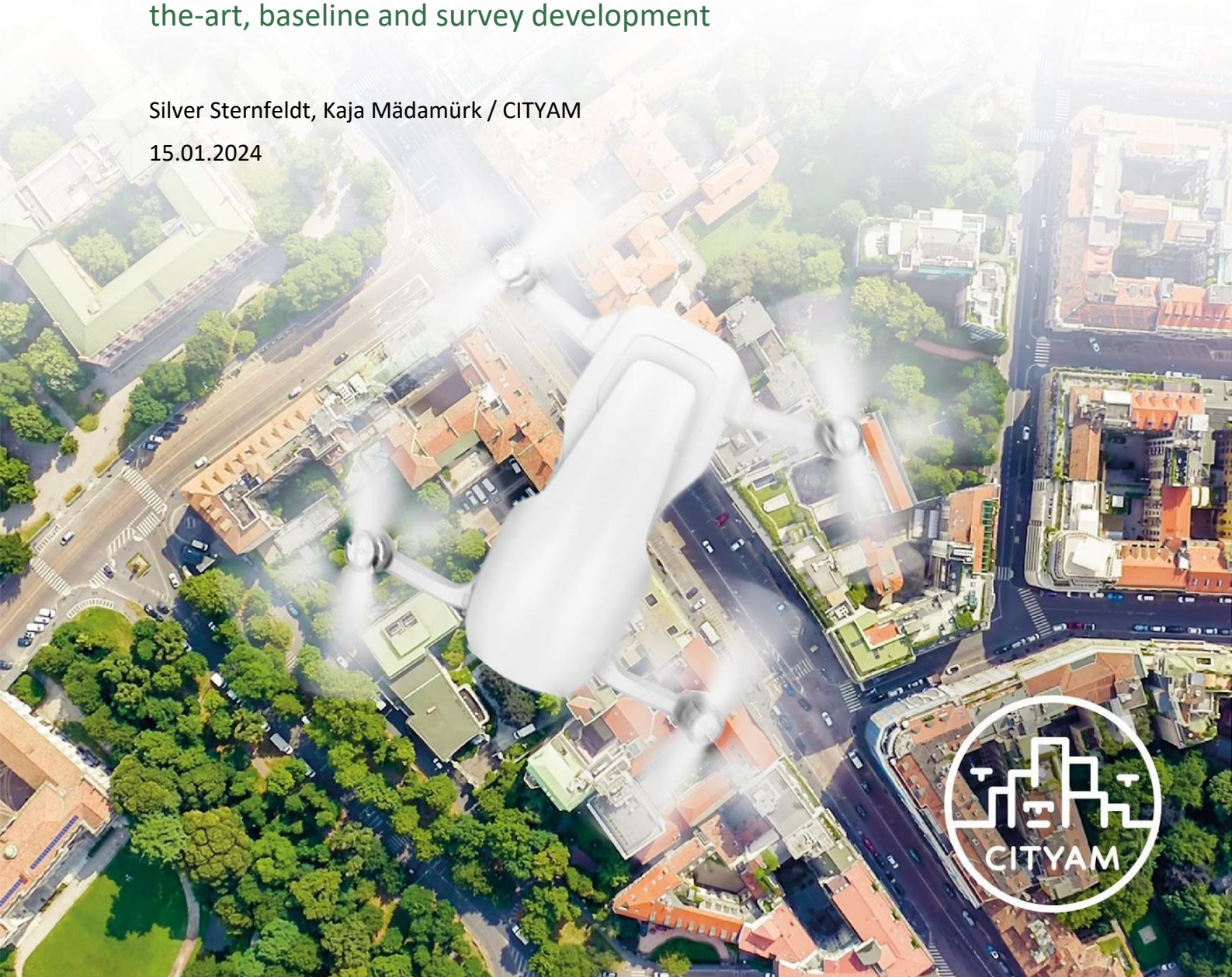
SMART GREEN MOBILITY
CITYAM

CITYAM empowers responsible urban air mobility

Deliverable of A1.2 Social acceptance of urban air mobility: state-of-the-art, baseline and survey development

Silver Sternfeldt, Kaja Mädamürk / CITYAM

15.01.2024



Summary

The current report is Deliverable 1.2, part of Activity 1.2 “Social acceptance of urban air mobility: state-of-the-art, baseline and survey development” under Work Package 1 in the CITYAM project funded by Interreg Baltic Sea Region (2023-2025). Completed in the project's first year, it focuses on the social acceptance of various drone services in urban environments. Urban Air Mobility (UAM) is being deployed globally, and its successful integration requires engaging citizens early on. National and international institutions are working to keep pace with the rules and procedures that need to be established amidst these developments. Public embracement is crucial, considering concerns raised by the public. To help gather crucial data for city planning strategies, a toolkit assessing social acceptance of UAM has been developed. It will be piloted by leading cities of Stockholm, Helsinki, and Hamburg in 2024 under Activity 2.2 "Piloting use cases and landing sites".

Social acceptance of UAM gauges the willingness of communities to support the integration of aerial vehicles and accompanying infrastructure into urban transportation systems. Acceptance includes attitudes toward UAM technologies, considering factors like environmental impact, safety, privacy, visual and noise pollution, trust in technology and authorities, and perceived benefits. The toolkit, adjusted from existing models of social acceptance, evaluates general acceptance of UAM and use-case-specific acceptance of drone services in leading cities. The toolkit is in english and is meant for municipalities or other UAM stakeholders to be translated into their native language for implementation. Instructions are provided throughout the toolkit to foster the process from translating to survey rollout. The toolkit is modular and can be adjusted to address various circumstances cities might have when piloting their use cases.

Table of contents

1. Introduction

Urban Air Mobility (UAM), an emerging air vehicle system for passengers, cargo and delivery, monitoring and emergency response solutions within urban settings, is already deployed in many countries or could be deployed in wider scale in Europe in the next few years (e.g. Aydin, 2019). This innovation holds the promise of providing time savings, efficiency improvements and cost reductions. UAM is redefining the way people and goods move within cities and how public services are implemented. The untapped potential of our urban skies could offer solutions to address these challenges. However, national and international institutions are trying to keep up with the rules and procedures to be established with such rapid development (Eißfeldt, 2020). Cities need to be ready and manage UAM in a responsible way. Increasing public officials' capabilities, and measuring public acceptance are key to this work. Policies and tools for a solid UAM strategy, to adapt city planning practices in relation to launch and landing site and airspace management, and also to scale city-owned drone operations as part of a multimodal transport system are crucial.

Recent studies (e.g. EASA, 2021; Yedavalli, 2019; Van Egmond, 2022) recognize that for Urban Air Mobility (UAM) to come true as a feasible solution, it is also crucial to involve citizens in its development from the outset. Insufficient engagement could otherwise lead to significant adverse outcomes for the advancement of UAM operations. Acceptance by citizens will be a "make-or-break" factor in the development and - notably - scaling of Urban Air Mobility. Earlier studies, such as a largest one carried out in Europe to date (by EASA, in spring 2021), have shown that the majority of respondents broadly welcome the prospect of services such as air ambulances and drone deliveries but have concerns about potential issues such as safety, security, noise and the impact on wildlife. As embracement by the public is such an important factor and crucial data for cities to build their strategies on, studying acceptance is a relevant and urgent topic also for the CITYAM project. Given that opinions shift over time, a future-proof toolkit to assess the social acceptance of UAM was therefore developed.

Cities (and their local partners, such as city subsidiaries or living labs) can use The Urban Air Mobility Public Acceptance Toolkit to engage citizens, raise awareness on UAM, increase knowledge of UAM, gauge the opinions on this topic, and in general put UAM on the local agenda. It is meant to be used as a modular questionnaire designed to cater the different needs of municipalities in various urban settings. Possibility to modify the questionnaire to meet the local cultural and situational context is presented. The toolkit is divided into two main parts, making it possible to assess the social acceptance of the UAM in general and also the social acceptance of the specific drone service that stakeholders are piloting or deploying.

Use cases of CITYAM are planned to be piloted in the leading cities of Stockholm, Helsinki and Hamburg as part of Activity 2.2 "Piloting use cases and landing sites" in 2024. The Toolkit of The Social Acceptance of Urban Air Mobility is going to be piloted in Stockholm, Helsinki and Hamburg simultaneously with the use cases. Data will be gathered about the social acceptance of these use cases and also about the general acceptance of UAM to execute

psychometric analyses for determining how the questionnaire is performing in different languages and circumstances.

2. Theoretical background

2.1. Social acceptance and engaging the community

The social acceptance of urban air mobility (UAM) refers to the degree to which individuals, communities, and society at large are willing to embrace and support the integration of aerial vehicles, such as drones and flying taxis, into urban transportation systems. It encompasses public attitudes, perceptions, and approval of UAM technologies and services. Several factors contribute to social acceptance, including environmental impact, safety concerns, privacy issues, trust in technology and autohorities, and the perceived benefit (Zhang, 2023; Yuen, 2020, Young, 2023, Winter, 2020). Successful integration of UAM relies on addressing these concerns and fostering a positive perception among the public.

Engaging with communities, obtaining feedback, and ensuring transparency in the development and deployment of UAM technologies are essential for gaining social acceptance. It involves creating awareness, addressing potential fears or misconceptions, and demonstrating the positive impacts of UAM on transportation efficiency, costs and environmental sustainability. Public participation, experiences with the drone service and involvement in decision-making processes can also contribute to building trust in technology and authorities, and acceptance of these innovative transportation solutions.

Trust is an important element of perceived fairness (Shaheen, 2018; Wüstenhagen, 2007). It is emphasized that trust plays a crucial role, especially when making decisions involving various risk factors such as environmental, economic, and social considerations. The perceived fairness of the decision-making process greatly relies on how risks are identified, information about these risks is generated, and how and by whom they are handled. Specifically, when responsible stakeholders are outsiders to the community, trust becomes a concern, encompassing their aims, agendas, attitudes, and competences. The transparency of the process for local engagement and the adaptability and open-mindedness of external actors are essential as situations can easily become problematic.

2.2. Social acceptance models and theories

Several questionnaires that were created to assess the social acceptance of new technology, including acceptance of UAM solutions (Aydin, 2019; Eißfeldt, 2020; Kalakou, 2023; Koh, 2023; Tan, 2021; EASA, 2021; Yedavalli, 2019; Van Egmond, 2022; Yuen, 2020; Young, 2023; Winter, 2020; Lee, 2023; De Sena, 2016) were examined to develop a model of the social acceptance of UAM, that fits the circumstances and the focus of the CITYAM project. The psychological aspects behind the statements in these studies were mostly overlapping. Use cases that cities are piloting in this CITYAM project are public services that do not presume citizen's direct engagement with the drones. However, most of the existing questionnaires are meant for either assessing the social acceptance of delivery drones or air taxis (e.g. Lee, 2023; Venkatesh, 2012, Winter, 2020; Young, 2023).

Pilot use cases like delivering medical equipment, drone as first responder during emergencies, healthcare deliveries, water rescue missions delivering floating devices and flood protection controlling the associated protective measures have different characteristics compared to commercial use of drones with people interacting with them directly. Therefore common theories and models like Technology acceptance model (TAM, Davis, 1989), Theory of Planned Behavior (TPB, Ajzen, 1985), or Unified Theory of Acceptance and Use of Technology (UTAUT, Venkatesh, 2003) resulted as inadequate for these use cases. However Perlaviciute (2014) proposed a Cost & Benefit model of acceptance of energy alternatives, that was adjusted for UAM. Cost and benefit are divided into personal and societal. Also a trust dimension was added. Additional statements were phrased to assess the general acceptance of UAM not related to the use cases planned to be piloted in the leading cities in 2024.

3. Toolkit introduction

The Toolkit of The Social Acceptance of Urban Air Mobility is part of Deliverable 1.2 of CITYAM and was developed during 2023. In 2024, it will be piloted by the three leading cities Hamburg, Helsinki and Stockholm and consolidated into Output 2.3. The current toolkit is a questionnaire meant to assess the general social acceptance of the UAM (see 4.3) or the use case specific social acceptance of the UAM (see 4.4). One does not exclude the other. The toolkit is meant for the municipalities or other stakeholders to understand the social acceptance of the UAM. The toolkit consists of four sections:

3.1. Survey invitation
3.2. Sociodemographics
3.3. General acceptance
3.4. Use case acceptance

Each section is meant to be translated to the native language of the CITYAM partner cities and completed by the piloting city with additional information about the use case specified in the instructions and in the brackets. The questionnaire is meant to be set up in a preferred survey platform by the city who is collecting data.

3.1. Survey invitation

Survey invitation is meant to be sent to the citizens to give a short explanation and introduction about the survey together with the link. Each municipality will send out their own invitation via preferred channels (e.g. social media, news letters, survey panels etc). General information about the survey is presented, including the location where the survey is carried out (city or district etc), the name of the organiser of the survey (e.g. the municipality) and other responsible stakeholders (e.g. aviation authority), the duration of the survey, the response time and the link to the survey itself.

3.2. Sociodemographics

The project partners agreed that sociodemographic variables relevant to be asked are age, gender, highest level of education, main residence and occupational status. These were chosen to help municipalities to react accordingly and reach targeted groups in case of low social acceptance. Also, main residence option allows the municipality to filter respondents according to the district if necessary (e.g. when use case location and answers from only locals is relevant). Some sociodemographic variables are specific to local circumstances. So the organizer of the survey must phrase the options about the education and the residence according to the official categorisation and classification of the educational system and the local district division.

3.3. General acceptance

The general acceptance section of the survey is meant for assessing the attitudes, preferences and concerns (i.e., the costs, benefits, and trust) about the social acceptance of UAM in general, and their previous knowledge and experience with drones. Respondents are presented with a short introduction to the UAM not related to any certain use case.

3.4. Use case acceptance

The use case acceptance section of the survey is meant for assessing the social acceptance of the drone service that the municipality is piloting or is planning to pilot. The organiser of the survey must complete a short description of the drone service. Several points to be covered are presented in the instructions to complete the introduction of the use case. Additional materials and visuals (photos, videos, maps) should be added to the use case to make it more comprehensible.

The questionnaire consists of modules covering topics about trust, ease of use, perceived usefulness, privacy, environmental aspects and launch and landing sites. The organiser of the survey can choose, which modules are actually relevant for their use case and if they want to use all modules at the same time, or present the respondents with multiple, shorter surveys.

3.5. Translating the toolbox

The organiser of the survey translates the English version of the invitation, and all the sections of the questionnaire which are marked with a dash line. The version of the questionnaire in the local language must be translated back into English to compare the original English version with the new one to check if anything went missing in translation. The person who is doing the back translation should not have seen the original English version before. Back translation helps to discover mistranslations as well as cultural nuances that are challenging to translate directly. Back translation also helps to maintain consistency in terminology, style, and tone which is essential when assessing people's attitudes and concerns. If the two English versions differ significantly, the questionnaire in the native language must also be checked to see if corrections have to be made there.

3.6. Rolling out the survey

If the translation is done, the blanks are filled, the questionnaire is set up in a survey platform, then the survey invitation with the link to the survey can be sent out. The organiser of the survey (e.g. leading cities in the spring of 2024) can outsource the survey service if needed to get the representative target group. The minimum number of respondents per CITYAM city is 300 people, but the sample must be proportional to the population. Sample size should be at least 500 people in municipalities with more than 100 000 citizens. A larger sample is recommended.

The leading cities of Helsinki, Stockholm and Hamburg are expected to gather data in Spring 2024, when piloting their use cases. The data must be submitted in the end of April for analyzing the psychometric properties of the questionnaire. Based on the results the final version of the toolkit will be developed.

4. The UAM Social Acceptance Toolkit

4.1. Survey invitation

Instructions

This is the survey invitation for the **Urban Air Mobility Public Acceptance Survey**. Please translate it and fill in the blanks described in the brackets. This part is sent to the respondents together with the survey link. The invitation is meant for introducing the survey to the potential respondents.

NB! ***"(Notes: …)"*** throughout the toolbox are for your information only. They are here to help you navigate the questionnaire and build the necessary structure for your survey. Delete them from the questionnaire so that they would not distract the respondents.

(This box is not part of the questionnaire.)

/ Survey invitation starts here /

Dear citizen of the ***(Note: Insert here the name of your city, municipality or district)***! ***(Note: Insert here the names of the organisations who are arranging the survey)*** is inviting you to participate in the Urban Air Mobility Public Acceptance Survey. This survey is developed within the CITYAM project, which is funded by Interreg Baltic Sea Region (2023-2025). The survey will be conducted in various cities in Europe. Urban Air Mobility (UAM) includes various types of drones, as well as launch and landing sites, which have an increasingly large role in urban transportation. The aim of this survey is to engage citizens, raise awareness on UAM, gauge the opinions on this topic and in general put UAM on the local agenda. Your participation is very important for helping the municipality in making strategies and policies on drones in the best possible way, and making our cities more human friendly. The data is collected from ***(Note: insert start date here)*** to ***(Note: insert end date here)***. Your answers are anonymous and analysed in a generalized way. The survey takes up to 15 minutes to complete. If you are willing to participate, please click **here**. ***(Note: The link for this survey will be generated by whoever is gathering the data using their preferred survey platform.)***

/ Survey invitation ends here /

4.2. Sociodemographics

Instructions

This section of the survey addresses the sociodemographics of the respondents. Please translate all the questions and options. Please use your local circumstances to phrase the options about the education and the residence.

NB! ***"(Notes: …)"*** throughout the toolbox are for your information only. They are here to help you navigate the questionnaire and build the necessary structure for your survey. Delete them from the questionnaire so that they would not distract the respondents.

(This box is not part of the questionnaire.)

/ Questionnaire starts here /

The Urban Air Mobility (UAM) Public Acceptance Survey

Dear respondent! The aim of this survey is to engage citizens, raise awareness on UAM, gauge the opinions on this topic and in general put UAM on the local agenda. Your participation is valuable for making our cities more human friendly.

Please answer the questions about your background.

Age:

(Note: this is an open ended question)

Gender:

(Note: this is a single choice option.)

- *male*
- *female*
- *non-binary*
- *other*

Highest level of education:

(Note: this is a single choice option)

- *(Note: Please insert the options based on the national classification of the education that you are using in your country.)*

Main residence:

(Note: this is a single choice option. This can be used as a filter question if there is a need to differentiate locals from nonlocals in the 4.4 Use case acceptance.)

- *(Note: Please insert the options based on your local division of the districts in your city where you are carrying out the survey.)*

Occupational status:

(Note: this is a multiple choice question)

- studying
- working
- not in employment
- on parental leave
- retired
- other

Click next

/ Questionnaire ends here /

4.3. General Acceptance

Instructions

This section of the survey addresses the general acceptance of urban air mobility. Please translate the introduction about urban air mobility with all the questions and options. Note: this section of the survey can be used together with section 4.4. Use Case Acceptance.

NB! ***"(Notes: …)"*** throughout the toolbox are for your information only. They are here to help you navigate the questionnaire and build the necessary structure for your survey. Delete them from the questionnaire so that they would not distract the respondents.

(This box is not part of the questionnaire.)

/ Questionnaire starts here /

Please read the following introduction about drones and then answer the questions.

It is quite new to have drones flying in the city. If there starts to be more of these small flying robots, we call this Urban Air Mobility (UAM). Drones come in different shapes and sizes. Some are only 30 cm wide and some are 2,5 metres wide. Note that large drones, or air taxis, that can carry people are not considered for this survey.

Drones can have a lot of uses. They can carry sensors, cameras or packages. There are many different things they can do, for example help with deliveries, inspect buildings, bridges or forests, scan fires, assist in searches, deliver medical supplies, aid in disaster response and many more. They have the potential to save time and costs and change the way the city will look like. If cities know what the citizens think about drones, they can better plan where, when or how often they should be allowed to fly.

1. **Have you ever heard of drones before participating in this survey?**
   - yes *(Note: If yes -> Q2)*
   - no *(Note: If no -> Q4)*

2. **Where have you seen or heard about drones? Select any that apply.**
   - Read or saw through media (e.g. social media, books, movies or tv series, news)
   - Personal experience (e.g. drone events, hobbies, family or friends etc.)
   - Professional experience (e.g. school, work, conferences, workshop, trade literature etc)
   - Other, please specify:

3. **Have you operated a personal drone and/or does your work involve operating drones?**
   - yes
   - no

4. **How knowledgeable are you on the subject of urban air mobility?**
   - Not knowledgeable at all
   - Slightly knowledgeable
   - Moderately knowledgeable
   - Very knowledgeable

In your opinion, how acceptable are the following uses of drones?

(Options: Very unacceptable; Somewhat unacceptable; Neutral; Somewhat acceptable; Very acceptable; Do not know)

5. Personal use (e.g. personal deliveries like groceries, takeaway food or other consumer goods)
6. Commercial use (e.g. transporting cargo between companies for business / logistics purposes)
7. Passenger transportation (air taxi)
8. Public safety (e.g. crowd control at large events, traffic patrol, tracking criminal activity)
9. Security surveillance (e.g. border control, illegal immigration, home security systems)
10. Construction and infrastructure maintenance or inspection (e.g. roads, buildings, bridges, telecom towers, windturbines, highways, railways, nuclear plants)
11. Emergency or disaster detection and response (e.g. search and rescue services, police, ambulance, first aid, firefighting)
12. Medical deliveries (e.g. laboratory samples, organs, surgical instruments, medicine)
13. Environmental monitoring (e.g. ecosystem health, oil spills, wildfires, wildlife protection, deforestation, air pollution)
14. Agricultural monitoring and interventions (e.g. maintaining agricultural fields, crop health and growth, planting trees, herding cattle, fertiliser sprawying)
15. Leisure time activities, entertainment and hobbies (e.g. photography or video, drone racing, drone shows)
16. Media coverage (e.g. recording video and sound, taking photos, counting people at events)
17. Scientific research use (e.g. meteorological, archeological, marine, global warming etc.)
18. Supplying connectivity via wireless signals (e.g. internet, broadcasting etc.)

How concerned are you with the following drone topics?

(Options: Not concerned at all; Slightly concerned; Moderately concerned; Considerably concerned; Very concerned; Do not know)

19. Collision with other air traffic in the air
20. Safety on land
21. Personal injuries
22. Animal welfare
23. Criminal activity
24. Misuse of data
25. National security
26. Violation of privacy
27. Property damages
28. Noise pollution (disturbing noise from the drones)
29. Visual pollution (disturbing amount of drones in the air)
30. Price levels and cost of service
31. Increasing consumption levels (e.g. commercial deliveries)

In general, what would you consider a suitable launch and landing site area for drones?

(Options: Not suitable at all; Somewhat suitable; Not unsuitable nor suitable; Quite suitable; Very suitable; Do not know)

32. residential area (where are mostly apartment buildings or private houses)
33. commercial area (where are mostly shops, supermarkets)
34. industrial area (where are mostly factories or offices)
35. recreational area (parks and playgrounds)
36. rooftop of a private building
37. rooftop of a public building
38. rooftop of a commercial building
39. sidewalk/pavement
40. public transport stop
41. parking space

How important are the factors that influence your opinion on launch and landing sites for drones?

(Options: Not important at all; Somewhat important; Moderately important; Quite important; Very important; Do not know)

42. aesthetics (how they look)
43. noise pollution (disturbing noise from drones launching or landing)
44. frequency of landings and takeoffs
45. size of the site
46. content of the cargo
47. purpose of the drone flight
48. closeness to home

49. closeness to work
50. closeness to pedestrian area
51. safety of the site (e.g if it has a fence around it)

Click next

/ Questionnaire ends here /

4.4. Use Case Acceptance

Instructions

This section of the questionnaire addresses the acceptance of your use case. This section can be used together with section 4.3. General Acceptance. You can filter the respondents by district in section 4.2. Sociodemographics, if you want respondents from only the district where you are piloting your drone service.

Composing the description of the use case

Use the following topics to compose a short informative description of your drone service use case for the respondents. You can write it as a press release. Keep it short, but precise enough to enable the respondents to form an opinion and answer the survey. This description will be given to the respondents before they start answering the questions about the use case given below.

- Name of the use case
- Responsible party for piloting this drone service (+ other stakeholders if necessary)
- Reason for piloting this drone service
- Time and location of the pilot of this drone service
- Type of the mission or the service
- Necessary drone specifications
- Necessary launch and landing site specifications
  - If you have multiple launch and landing sites then describe all of the locations
  - Use the launch and landing site module for each site separately.
- Add additional materials and visuals (photos, videos, maps)

Statements

The use case and the statements go hand in hand. Because the statements are modular (e.g. Trust, Launch and landing sites, Privacy) you can choose to leave some modules out, if they do not apply to your use case. However the use case description should be specific enough for the respondents to form an opinion regarding the use case. Make sure that the statements and the use case description correspond to each other.

- Trust: Q56 - Q60
- Ease of use: Q61 - Q64
- Perceived usefulness: Q65 - Q70
- Launch and landing site: Q71 - Q75
- Privacy: Q76 - Q89
- Environmental aspects: Q90 - Q101

NB! ***"(Notes: …)"*** throughout the toolbox are for your information only. They are here to help you navigate the questionnaire and build the necessary structure for your survey. Delete them from the questionnaire so that they would not distract the respondents.

(This box is not part of the questionnaire.)

/ Questionnaire starts here /

Please read the following introduction about the drone use case and then answer the questions.

(Note: Insert use case description here. Add necessary visuals to illustrate the use case.)

52. **Have you seen the drone flights described above with your own eyes?**
    - yes *(Note: If yes -> Q53)*
    - no *(Note: If no -> Q54)*
53. **Where did you see the drone flights?**
    - *(Note: Add options, where these flights take place e.g. neighbourhoods, districts or flightpaths from A to B etc.)*
54. **Have you seen the launch or landing of the drone described above with your own eyes?**
    - yes (*Note: If yes -> Q53*)
    - no *(Note: If no -> Q54)*
55. **Which sites did you see?**
    - *(Note: Add options, where these launch and langing sites are located e.g. neighbourhoods, districts, some other recognizable urban feature etc.)*

To what extent do you trust the local authorities regarding the use of drones?

(Options: do not trust at all; rather do not trust; neither distrust or trust; rather trust; trust completely; do not know)

(Note: Here starts the Trust module)

56. Do you trust the local authorities to use drones for the benefit of the citizens?
57. Do you trust the local authorities to use drones for the well-being of the citizens?
58. Do you trust the local authorities to regulate the use of drones adequately considering the needs of the public interest?
59. Do you trust the local authorities to regulate the use of drones without exploiting the citizens?
60. Do you trust the local authorities to regulate the use of drones legitimately?

To what extent do you agree with the following statements regarding the drone service described above?

(Options: strongly disagree; somewhat disagree; neither disagree or agree; somewhat agree; completely agree; do not know)

(Note: Here starts the Ease of use module.)

61. This drone service is easy for me to understand.
62. This drone service would behave in a way that I would expect.
63. This drone service is beneficial for everyone.
64. This drone service benefits only a privileged part of the society.

(Note: Here starts the Perceived usefulness module.)

65. This drone service increases my safety.
66. This drone service increases my well-being.
67. This drone service increases my quality of life.
68. This drone service creates new job opportunities.
69. This drone service helps to increase the quality of life in the society.
70. This drone service increases safety in the society.

(Note: Here starts the Privacy module.)

71. This drone service decreases my personal privacy.
72. Residents' privacy is at risk if drones are used like this.
73. Too much of citizens' personal information is collected by this drone service.
74. There is too much privacy uncertainty related to using this drone service.
75. My daily activities are not monitored by this drone service.

How likely do you consider the following events and changes in the environment caused by the drone service described above?

(Options: Very unlikely; quite unlikely; not unlikely or likely; quite likely; very likely; do not know)

(Note: Here starts the Environmental aspects module.)

76. This drone service might improve air quality.
77. This drone service might decrease road congestion.
78. This drone service might make transportation cheaper.
79. This drone service might be more environmentally friendly than fossil fuel based solutions.
80. This drone service might decrease pollution caused by traffic.
81. This drone service might decrease traffic noise.
82. This drone service might increase noise pollution (disturbing noise from the drones).
83. This drone service might increase visual pollution (disturbing amount of drones in the air).
84. This drone service might endanger wildlife and nature.
85. This drone service might be misused for criminal activity.
86. This drone service might cause many people to lose their jobs.
87. This drone might malfunction and cause property damage.
88. This drone might crash into the traffic.
89. This drone might injure or kill someone.

To what extent do you agree with the following statements regarding the launch and landing sites described above?

(Options: strongly disagree; somewhat disagree; neither disagree or agree; somewhat agree; completely agree; do not know)

(Note: Here starts the Launch and landing sites module.)

90. The location of this site helps me benefit from the drone service.
91. The location of the site makes the drone service more effective.
92. The site takes the urban surroundings into account.
93. The site is situated in a location where the space is otherwise not used reasonably.
94. This site prevents me from using the urban space the same way I am used to.
95. This site takes away something important for me from the urban space.
96. This site disrupts the emotional bonds I have with the area.
97. This site does not consider my memories related to the location.
98. This site should be used for something more useful.
99. This site looks nice.
100. The site in this location is safe for the citizens.
101. The site considers the cultural and historical values in this location.

Submit answers!

Thank you for participating!

The results will be published in a report in CITYAM channels.

Web page: https://forumvirium.fi/en/projects/cityam/

LinkedIn: https://www.linkedin.com/company/cityam-project/

Contact person: *(Note: Inser here the name and the contacts of the survey coordinator from your municipality.)*

/ Questionnaire ends here /

Instructions

This is the end of The Toolkit of The Social Acceptance of Urban Air Mobility. Good job!

If you have any troubles with the toolkit, please don't hesitate to write: silver.sternfeldt@taltech.ee

(This box is not part of the questionnaire.)

References

Aydin, B. (2019). Public acceptance of drones: Knowledge, attitudes, and practice. *Technology in society*, *59*, 101180.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control: From cognition to behavior* (pp. 11-39). Berlin, Heidelberg: Springer Berlin Heidelberg.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Eißfeldt, H., Vogelpohl, V., Stolz, M., Papenfuß, A., Biella, M., Belz, J., & Kügler, D. (2020). The acceptance of civil drones in Germany. *CEAS Aeronautical journal*, *11*(3), 665-676.

EASA, N. (2021). Study on the societal acceptance of urban air mobility in Europe.

Kalakou, S., Marques, C., Prazeres, D., & Agouridas, V. (2023). Citizens' attitudes towards technological innovations: The case of urban air mobility. *Technological Forecasting and Social Change*, *187*, 122200.

Koh, L. Y., Lee, J. Y., Wang, X., & Yuen, K. F. (2023). Urban drone adoption: Addressing technological, privacy and task–technology fit concerns. *Technology in Society*, *72*, 102203.

Tan, L. K. L., Lim, B. C., Park, G., Low, K. H., & Yeo, V. C. S. (2021). Public acceptance of drone applications in a highly urbanized environment. *Technology in Society*, *64*, 101462.

Yedavalli, P., & Mooberry, J. (2019). An assessment of public perception of urban air mobility (UAM). *Airbus UTM: Defining Future Skies*, 2046738072-1580045281.

Van Egmond, P., & Mascarenhas, L. (2022). Public and Stakeholder Acceptance–Interim Report. *AiRMOUR Deliverable*, *4*.

Yuen, K. F., Chua, G., Wang, X., Ma, F., & Li, K. X. (2020). Understanding public acceptance of autonomous vehicles using the theory of planned behaviour. *International journal of environmental research and public health*, *17*(12), 4419.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.