

A Grounded Theory Exploration of Air Taxis in Florida: Motivations for Adoption

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Abstract

This study investigates Floridians' perspectives on an emerging mode of transportation: air taxis, technically known as e-VTOL (electric vertical take-off and landing). This qualitative study aimed to identify the primary motivations for fostering acceptance and adoption by the general public. Three significant themes and seven sub-themes were identified through a grounded theory exploration of 13 in-depth interviews. The main themes encompass trust, a sense of agency, and the prolongment of excitement. Initial findings indicate that trust needs to be gained from the public through education, a guarantee of safety, and credible communication to generate acceptance of this new technology. However, findings suggest that Floridians view air taxis as a one-time entertainment, which does not guarantee adoption. Prolonging excitement and making passengers feel a sense of agency over their lives and time indicates that it will lead to adoption. The findings suggest a communication strategy to promote e-VTOL should be based on the three themes to ensure acceptance and adoption. Florida's future mobility plans can benefit from this qualitative research to reimagine future cities, as few studies have assessed or investigated public motivations around this innovation.

Keywords: air taxis; motivations; adoption; e-VTOL; technology

Introduction

New transportation modes generate changes in society, and air taxis may be the next to revolutionize how people decide to live and travel. Air taxis (Figure 1, Federal Aviation Administration [FAA], 2022), or electric vertical take-off and landing (e-VTOL), are a ridesharing technology being developed by aviation companies for short distance flights within and between major cities, and are expected to be available for commercial operation in 2025 (AeroTime, 2023). Besides promising to save people's time from traffic, air taxis are marketed as a safe, affordable, and sustainable travel method (McKinsey, 2021). Florida is one of the U.S. states adding the basic preparations in the city plan to make urban air mobility possible. Orlando, Miami, and Tampa can be considered the city leaders in this project. This study focused on

Orlando and Miami's impact on the acceptance and adoption of urban air mobility due to their national and international recognition.



Figure 1. Air Taxi Illustration (FAA, 2022)

Existing research on air taxis has quantitatively assessed consumer demand and public perception; key findings show that primary motivators are saving time, being cost-efficient, safe, and comfortable (Boddupalli, 2019), and the top concerns are safety, type of sound, sound volume (Yedavalli & Mooberry, 2019). However, there is a lack of qualitative studies about consumer motivations and how potential adopters consider and discuss the possibilities of adopting this type of transportation. Only one qualitative study that explores societal barriers associated with urban air mobility by Booz, Allen, & Hamilton (2018) was found, and none was found exploring motivation. In this qualitative study, two focus groups conducted by NASA highlighted several key findings, among them the desire for affordable UAM services, the need for expedited passenger screening, and the preference to use air taxis in place of airport or long-distance recreational trips rather than as a substitute for commuting (Booz, Allen, & Hamilton, 2018). Conducting more qualitative analyses will enable a more profound understanding of feelings, emotions, values, and human experiences to complement previous and new quantitative studies. In addition, no qualitative research was found strictly on Floridians' perspectives.

In summary, this study underscores the vital role of trust, a sense of agency, and prolonged excitement as essential drivers of motivation to accept and adopt air taxis. A thesis is suggested and further discussed: prolonging excitement and making passengers feel a sense of agency over their lives and time will lead to adoption.

Method

This study and the method used to collect and analyze the data were approved by the University of Florida Institutional Review Board (#IRB202202345). A grounded theory exploration, designed by Glaser and Strauss (Glaser & Strauss, 1967) and polished by Glaser (Glaser, 1978, 1992, 1998, 2001) was chosen as the most appropriate method. Data were collected through semi-structured in-depth interviews with 13 participants (7 from Miami and 6 from Orlando) ranging in age from 19 to 59 ($M = 26.58$, $SD = 10.74$), with 6 identifying as female, 6 as male, and 1 as other. Most (84.62%) commute to work and all of them are users of ridesharing apps. It should be noted that the sample is for quantitative exploration and does not aim to represent all Floridians. Census definitions determined whether a participant lived within Orlando and Miami metro areas (Figure 2; Census Reporter, 2021a, 2021b). The metric was chosen based on the flying distance capacity of air taxis currently being developed.

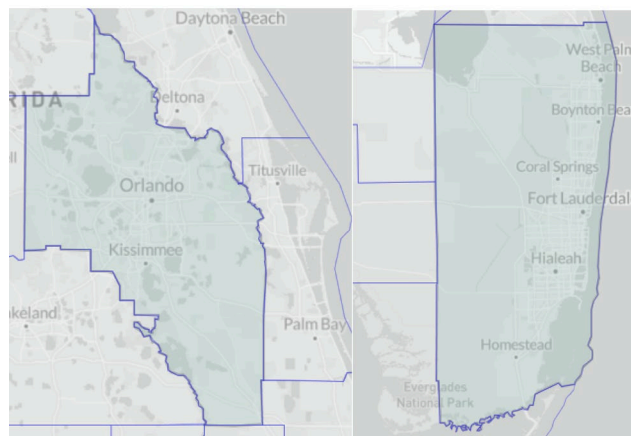


Figure 2. Orlando and Miami Metro Areas (Census Reporter, 2021)

Recruitment was done through LinkedIn group posts and messages shared with student researchers' local networks in the research locations (via email and text). Potential participants completed a screening questionnaire on Qualtrics and proceeded to the interview if they lived in one of the two metro areas and were over 18 years old. One-hour interviews were taken on Zoom, and two air taxi ads were shown at the beginning to help participants understand more about the subject: an ad from Uber (AviationWeek, 2017) and another from Hyundai (HyundaiWorldwide, 2021).

Findings

Trust

The *air taxi* term was new to 10 participants. Only 3 had heard it, but they did not know further information. Even though all shared some excitement about the idea, skepticism and questions were brought up. A deep connection between the level of trust and the level of information could be noticed. Education through credible communication seems to create more trust in the perceived safety of air taxis, according to what was observed in the participant's answers.

education. When asked what comes to mind about air taxis, 8 participants said it reminded them of futuristic sci-fi movies such as *The Jetsons*. Besides feeling “far from reality,” Responses were generally in the middle of the spectrum, leaning towards the positive. Participants agree it is unavoidable, but that doesn't mean they will adopt it. The skepticism seems to be directly related to the lack of knowledge.

“It has never been heard, so everybody should be skeptical about it.”

Participants mentioned they would need time to accept this idea and would probably wait a few years to try the technology. However, they say many people talking about it would make them more comfortable.

“I think just getting it out there in as many forms as possible would just help me feel better because I'm like ok, it is not just me that has heard about this, the New York Times has heard about it, and Twitter is talking.”

Along with hearing many talking about it, they mention they don't want to see attractive ads; they want to be educated about it.

“Advertising can be slick and sexy and fun, but again, you're only going to get one shot to capture a person. You need to be able to answer the underlying backline concerns of the wants and needs. Am I going to be safe? Is it going to be affordable?”

It seems that educational communication is a way to people trust that air taxis are safe. People are mainly searching for proof when talking about safety; they wish the communication focused more on safety measures instead of advertising other features of air taxis.

“Sometimes with ads, you get a lot of emotional appeals and everything, and I think that's all great, but at the end of the day, showing people this is factually proven to be safe is more important.”

Interestingly, participants care a lot about the air taxi pilots, such as the requirements to be one and the screening process. Various participants raised questions along the lines of this:

“Is this person capable? Does this person have what it takes to operate? We need to have some sort of conviction that we are in safe hands.”

Part of trusting air taxis is being educated about the safety protocols and how they can protect themselves in different scenarios. Participant responses convey that there is important information missing in the ads that were shown.

credible communication. There is a misconception about what people believe trustful communication is—for them—and what it is for others when trying to be convinced to use air taxis. From the 13 participants, 7 think credible communication comes from a close friend or family member who has experienced an air taxi trip rather than influencers and celebrities. However, they believe others would be more inclined to be convinced to try out the new technology by celebrities' and influencers' reviews on social media platforms.

“I believe that people trust celebrities and influencers a lot more than I do, so I know I am not a personal example of it, but I know they would influence people.”

Participants have a stronger sense of trust and confidence in those they know because it is a more genuine and authentic review experience—contrary to influencers and celebrities paid to promote.

“If it is an influencer or celebrity, they are probably paid for this ad, so I am not really engaged. If it is a person I know, it feels like I am more connected”

Sense of Agency

Participants feel useless, unproductive, and not in control over their lives when they experience traffic in their day-day routine. A great motivator for using air taxis is giving people back a sense of agency by having control of their time, the decision over their quality of life, and the assurance that air taxis are accessible.

control. When questioned about experiences with traffic, the prevailing descriptions used by participants include feelings of anxiety, irritation, and dissatisfaction. All 13 participants mention how traffic takes away their time and freedom. Controlling time is a huge motivator;

however, 7 participants fear losing the feeling of being in control once they enjoy the driving experience and are afraid that air taxis can destroy some of their independence.

“When people are driving, they feel like they have control over the car but also their lives and where they are going; with this plane that is being flown by someone else, you kind of take away a sense of agency, which I think it could be detrimental.”

Also, they worry about their privacy and enjoyment:

“Family vehicle helps you create that bond, and I mean it’s just a happy time with everyone, and everyone can actually share their thoughts and laugh about everything. In a taxi, it is going to be more reserved, because you’ll be trying to control what you see, what you do, and how you behave.”

Questions about whether they can choose the group they are flying with and how it will work to report someone inconvenient is a significant concern, one participant said they would be uncomfortable being with strangers in the sky.

“About people who go inside, are there any rules, or if I can be oh, I don’t want to ride with this person?”

It is noticeable that people want air taxis as an additional choice of transportation. They like the idea of having the power to decide and value flexibility because it gives them control.

“Hope the future is back to an expansion of choice. I think it would be detrimental to dictate to people what they have to do because I think that does not bring happiness in my experience. I think there is incredible room to look at all different transportation modes.”

quality of life. A total of 10 participants believe air taxis will give them more agency over their quality of life because they wouldn’t have to deal with all the stressful challenges they encounter in traffic. Quality of life for them includes having better mental health, improving performance at work, and spending more time with family.

“Prepare me mentally for the day without also having to focus on driving a car. Because you don’t get stressed out by traffic or whatever crazy drivers are doing, you can kind of just relax.”

Participants shared how air taxis could help them be more productive and perform better at work. They state that their mood dictates how effective they are at work, and air taxis can contribute:

“If you travel by air, you're more relaxed, you are more refreshed, but if you travel by car, you are a little bit tired because you've been working yourself through the whole process by driving and all of that, so it is way different.”

They believe it will also improve the amount and quality of their sleep and strengthen relationships with their family, spouses, friends, and even themselves. Especially those who live far from each other:

“I was just thinking, when I go see my parents, I would definitely do because my parents are two and half hours away north of me. I would probably be able to see them more often.”

Also, the ability to get from work earlier without the traffic stress can be positive:

“It is draining to drive there and back, so obviously, whenever you get back, you just sit down, rest on the couch or bed, or eat dinner and go to sleep. So I think if you feel more rested after your flight back home, then you can approach your family with more positive energy and help out in the kitchen, maybe cook and clean, or just spend time with your kids.”

accessibility. A person's sense of agency may be affected by the accessibility they have to a mode of transportation. People may feel frustrated and excluded if access is not easy or convenient. A majority of 8 participants underscored how important it is for air taxis to be accessible not only for them but for everyone.

“For this technology to be able to be widely accepted by the public in a rapid scalability, everyone needs to know that it would be accessible.”

For the participants interviewed, being accessible mainly involves the location, cost, and infrastructure. Regarding location, they question where the stations to take an air taxi will be and how easy it will be to access those locations. If it is not near their home or office, it will not be convenient for them to take it, says a participant:

“Once I get to the top of the building, how I get to my place means I'll probably have to use a taxi or cab. So how exactly have they solved my problem? There's still traffic.”

Even if the location is accessible, the cost is the primary determinant of whether air taxis will be accessible to the general public. From 13 participants, 10 expresses a price concern, they don't believe air taxis will be accessible for them cost-wise; they believe that in the first years, only the wealthy population will be able to access it.

Prolongment of Excitement

Participants see air taxis mainly as entertainment which is perfect for attracting first-time users. However, the first ride experience is not sufficient to make people adopt it because it is not intrinsically motivating over time. A solution would be the prolongment of excitement to foster regular use.

seeing as a one-time entertainment. Even though participants understand the positive external outcomes of using air taxis, such as saving time and being more productive at work, the newness element attracts participants the most, at least for the first experience. Participants share that new things are always fun.

“I think people are going to try it out because they are curious. This is new. It is unprecedented.”

One participant describes a type of friend that she sees using it:

“She is the epitome; if there is a new trend, she’s going to go do it because she likes to be ahead of the mainstream like ‘Oh look, I did first.’”

Participants share that they would mainly use air taxis as entertainment; some even compare the air taxi ride to a touristic helicopter ride and Disney rides. They see themselves experiencing it with friends, doing something special with their relatives or enjoying city skyline views. The fun element often appears when they imagine themselves experiencing the air taxis. However, positive outcomes turn out to be the least motivating factor, either because they don’t see benefits or they don’t see it as accessible as an “everyday transportation.”

“I would utilize this for a really cute date night or to hang out with friends. I think for me it would be definitely for the attraction until I saw how it could really help me.”

“Beginning, it will be the experience of utilizing air taxis, and I could imagine all the influencers like ‘My first air taxi ride.’ Air taxis are not going to be super accessible or even do their purpose. It is going to be an attraction.”

They describe the first experience as an adventure and compare it with the same self-enjoyment feeling they have when they travel by airplane, which they lose when driving a car. The views are a motivator; they describe how fascinating it will be to see the entire city and admire the beautiful constructions, architecture, and nature. All mention they would post on social media their first experience in an e-VTOL for their satisfaction and to convince others to try it out. As an example, a participant says:

“I am an Instagram eats first kind of girl, so yes, I would post my first experience

because I just like to share what is exciting.”

consistently engaging experience. Even though people see air taxis as entertainment, the excitement seems to not last over time. They say that experiencing it one time or in an event-based frequency is enough; not many see it as a routine commute possibility. Participants describe that the first rides would be fascinating; however, other rides would become one more day in their lives, and the fun aspect would not be a motivator anymore. They think it is exciting until it’s normal.

One participant shared a story about when Bird scooters first appeared in Brickell. All his friends, including himself, wanted to experience it because it was new and everyone was talking about it. He describes how it was exciting at first, and over time, he didn’t have enough motivation to keep using it.

“The first time I tried out, I was like “Yo, this is fun” and then it became somewhat useful whenever I would be in Brickell Miami. And then it became more of a nuisance, and then I stopped using it.”

Another participant shares a similar story, about her first experience with an UberXL and how it turned out with the same effect. Both are excellent examples of how seeing new transportation as an event-time entertainment and having fun in the first experience does not guarantee adoption. Creating a consistently engaging overall experience with air taxis can solve this problem as participants suggests.

“You are not going to get a second chance, so the goal is to build the experience in a way that you know it is not just a mode of transportation. It truly becomes an experience you want to experience over and over and over again. Not just the experience of the flight, but making the reservation, the cost of getting transportation immediately afterwards to get to your location, right? All the vendors that are connected to it are part of the experience. So you need to be very intentional at building the whole experience.”

Discussion

This study aimed to understand fostering Floridians’ acceptance and adoption of air taxis. The results show that trust, a sense of agency, and prolonged excitement are critical motivations.

Based on the findings, a thesis is suggested: prolonging excitement and making passengers feel a sense of agency over their lives and time will lead to adoption.

As air taxis are a new subject, it is identified that passengers need to trust the technology to accept it and have their first experience. People need to trust that it is safe, which can be accomplished by educating the general public through credible communication. There are indications that trust will lead to the first experience; however, it is not enough to guarantee adoption because people mainly see air taxis as a one-time entertainment, and the fun aspect has an expiration. It is not intrinsically motivating over time. What seems to lead to the adoption is the prolongment of excitement and making passengers feel a sense of agency over their lives. Excitement can be prolonged by consistently creating engaging experiences and a sense of agency, showing people how air taxis give them control, better quality of life, and assurance of accessibility (See Fig.3).

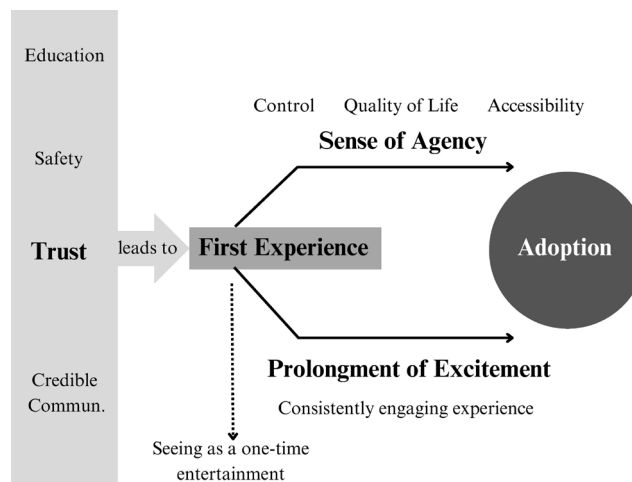


Figure 3. Strategies for achieving air taxi adoption

The outcomes of this study corroborates three key findings from NASA UAM Market Study by Booz, Allen, and Hamilton (2018) focus group research: (a) the need for price accessibility; (b) privacy and safety concerns, where participants would feel more comfortable flying with familiar passengers than strangers; and (c) seeing it as entertainment, participants would prefer to use recreationally than for commuting.

This study has some limitations and weaknesses which need to be considered. Even though a significant amount of data was collected, a qualitative sample of 13 participants does not represent all Floridians. Adding more participants could also help analyze better alignments

and disagreements. Also, only two main areas of Florida were analyzed, Orlando and Miami. Adding participants from Tampa, could help to further detail the results. Because of these considerations, it is essential to further investigate more thoroughly Floridan's motivations to accept and adopt air taxis.

Conclusion

Comprehending the motivations that can foster Floridians' acceptance and adoption of air taxis is vital to developing this new transportation technology in Florida. This study is practically and theoretically important, mainly because the analysis reveals that the long-term success of air taxi adoption depends on the prolongment of excitement and sense of agency. The thesis of this research is unique and beneficial for all industry stakeholders to think more clearly about how they can make the air taxi mode of transportation in Florida successful. This research supports some key findings from NASA UAM Market Study, complements previous quantitative studies and provokes curiosity for new studies about motivations to adopt the air taxi.

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