

**Paul Masson, StarNet, LLC
Kenneth Ross, KRG Global Consultants**

A Tale of Two Air Taxi Industries Planes and Business Models Envisioned to Change American Travel

Summary: Established Concept, New Technology, and Investors Questions

A comprehensive understanding of past financial successes and failures to adopt new technology can provide investors with the tools to properly select and price technology driven companies that are bringing new or improved products and services to targeted markets. This understanding permits the investor to minimize risk and judge where new technology can be monetized.

Today's air taxi vehicle (eVTOL) and emerging fleet operator companies need an investment community to support these ventures, but investors must take a holistic view of potential success that accounts for past patterns both within the industry and of new technology adoption. The success or failure of these companies will be guided by not only understanding the technology to be deployed, and its operational capabilities and limitations, but most importantly by providing the targeted "end user" with the reliability and cost promised.

It has been common that technical performance is achieved but adoption and operating costs prove excessive in deployment of this disruptive technology, ultimately resulting in the failure of the business model and loss or substantial diminishment of the capital deployed.

A combination of new aircraft powered by efficient and environmentally smart engines and operating with internet supported precision flying are bringing the potential of air travel to more individuals living in and close to urban areas relieving pressure on roads, rail systems and frayed nerves.¹ These technologies are being developed and deployed by existing aircraft manufacturers, such as Airbus, Boeing, Textron and a series of new aircraft manufacturers, such as Lilium, Archer, Joby Aviation and Beta Technologies. The future holds the potential of quiet vehicles landing on urban rooftops, shopping center parking lots and roofs, specially designed city airparks and suburban airports.

The combination of new aircraft, new landing locations and internet connectivity is coming to fruition by drawing on government, private and private/public investments that are being commercialized by traditionally non-aviation related companies that plan to provide an air travel service called "air taxi". While this type of service has operated and existed in the US since the 1930's,² under the definition of private air charter, there is increase interest and large financial investment now coming from non-traditional aviation sectors. For example, Intel, auto manufactures, like Honda and Toyota as well as others are investing hundreds of millions of US dollars in new startups, like Joby Aviation that is designing and developing a new mode of transport called the all-electric vertical takeoff and landing vehicle "eVTOL"

¹ "The Flying Taxi Market May be Ready for Takeoff, Changing the Travel Experience Forever", CNBC Tech Trends, March 7, 2020, accessed December 3, 2020

² "History of Air Taxi in the USA", Val Lynn, Skyman Airplane Charter, December 1, 2016

The public statements of emerging entities describe their collective intent to go beyond private air charter and create “true air taxi “ (TAT) companies, permitting individuals to schedule air travel on short notice using networked communications systems to call a vehicle from an operator that is reliable and predictable. To supply this true air taxi, the companies are pursuing business models driven by two different visions of the market demand: one a larger scale, broad market of high-volume demand within and between urban areas, and another a smaller scale market of targeted demand from existing individuals, business travelers and mid-distance commuters.

Investors will need to evaluate which models will be successful. In this context, the past gives us clues and possible answers to those Investors who are interested in this sector. The current emergence of new air taxi business models is the third within the past thirty years. In previous cases, the companies pursuing the broad markets with newer technology made technology advances, but failed to achieve their financial objectives and sold off their assets, e.g. DayJet, SkyTaxi, SATS Air, and Imagine Air. The companies (traditional air charter) that pursued targeted markets of proven travelers using existing technology succeeded in generating a profit, as evidenced by examining the current Air Charter and Fractional models still operating today, e.g. NetJets, Wheels Up, EJM, Private Jet Charter, XO Jet and FlexJet to name a few. Will the past predict the future, and can investors use the past as a guide to allocating capital when asked to support these emerging technologies? Let’s take a look.

What’s Happening: Announcements of Air Taxi Services Ready in mid-2020’s

A half-dozen companies in the United States and Europe have announced plans to provide air taxi service within congested urban regions and between regional airports by the mid 2020’s.³ This service promises to provide a reasonably priced alternative for ground travel and supplement existing hub-and-spoke air travel systems. The companies intend to provide air travel for distances between 25 up to 200 miles using aircraft that are all electric or hybrid electric powered capable of takeoff and landing vertically or on short runways to alleviate noise and environmental impact.

The Concept(s): Better Technology for More Travel Options and Growth Potential

These new “true air taxi” service companies are collectively promoting a concept that emerging technologies and ecosystems of operating partnerships will provide travel options that relieve congestion in urbanized regions, are compatible with environmental sustainability and have the potential for growth into integrated and established networked travel systems providing an alternative to road and intercity rail travel. The partnership ecosystems include the elements necessary for travel from doorstep to destination, including booking services, co-sharing with established air carriers, local limo/taxi, airport/heliport operators, vehicle suppliers,⁴ maintenance services, pilot training organizations, professional pilots/operators’ associations, government air traffic systems operators and customer service companies. The scope and terms of the partnership ecosystem drive the scope and mix of capital requirements.

³ Announced air taxi providers: UberAir, Lillium, Joby Aviation, KinectAir. Jaunt Air Mobility, Archer

⁴ Announced vehicle providers Airbus, Boeing, KittyHawk, Lillium, Terrafugia, Volocopter, Hyundai, Aurora Flight Sciences, Pipistrel, Kamen Air, Volocopter, VoltAero, Beta Technologies, Bell, Embraer, OverAir

The Market(s): Business Traveler, Long Distance Commuter, High Net Worth, and Public at large

Satisfying the need for travel is driven by distance, income and ease of connectivity, in other words time management versus cost. The new “true air taxi” providers all have slightly different market approaches. Some plan to meet the needs for regular business and commuter travelers for distances up to 200 miles, while others plan to save time for high-net-worth individuals with customized, concierge like travel. Some of the “true air taxi” providers plans are designed for growth to the broader public with the intent of creating high volumes of demand that will reduce unit and marginal operating cost, leading to a new air interconnected short haul travel system. The scope of markets serviced and connecting services also drive the scope and mix of capital requirements.

Business Model Precedents: Disruptive vs. Evolutionary Innovation

Similar US business models based on the same concept have been pursued in the past, without financial success. The most recent offering of an “improved” air taxi concept occurred between 2006 and 2010 and was based on the availability of either small jets called “very light jets” (VLJ) or improved turboprop aircraft, combined with implementation of US federal government funded airspace operations improvements. This period generated companies with three different business models:

- **Disruptive Innovation: All markets, high marketing, new ecosystems, large capital-** Companies such as **DayJet⁵**, and **Pogo Jet** intended to serve multiple travel market segments across a wide geographic area using very light jets (low entry cost) and specially designed booking systems that booked per-seat, on-demand travel.
- **Limited Disruption Innovation: Business travel market, existing ecosystems, new equipment, large working capital-** Companies such as **Imagine Air⁶**, **SATS Air** and **SkyTaxi** that targeted business travel across a wide geographic market, dependent on new prop aircraft.
- **Evolutionary Innovation: Congested Regional Travel, existing ecosystems,** Companies such as **Linear Air** and **Kenmore Air** intended to serve targeted markets with existing ecosystems and equipment that selectively adopted the technology improvements on an evolutionary basis.

Impacts and Business Model Predictions

The companies that adopted disruptive innovation by pursuing multiple market segments using travel ecosystems that were dependent on new technologies eventually proved the technology feasibility but failed financially.⁷ A common element of their business plans was capital expenditures planning for rapid deployment of new technology and large scale,⁸ media campaigns that promoted their businesses as the “test case” for the new form of air taxi. These companies succeeded in proving certain technology operating concepts, but not in demonstrating how the operating technology

⁵ DayJet operated flights from Oct 2007 to May 2008, Chapter 7 liquidation November 2008

⁶ Imagine Air operated from May 2007 to May 2018, Chapter 7 liquidation

⁷ “Air Taxis Fly Into Financial Turbulence”, Joe Sharkey, New York Times, May 20, 2008

⁸ “Aviation Industry Carnage: Eclipse bankrupt, Cirrus slows down for 2008, Philip Greenspun’s Weblog, November 26, 2008

could be adopted economically into a business model, which utilized expensive and unproven aircraft. The failure by companies that adopted disruptive innovation reduced investment and working capital for the remaining operators.

The companies that survived pursued proven market segments with existing ecosystems (albeit) at a high entry price by incrementally adopting evolutionary technology, most practically in matching consumer demand with reasonably priced travel to meet the value of “time” critically important to the customer.

The air taxi companies and ecosystems emerging for the mid 2020’s contain the same mix of business models, new technologies and ecosystems. Based on the previous evolution, these outcomes are likely to hold true:

Disruptive Innovation, Higher Growth Potential, Short of Capital, Lack of Competency at Complex Ecosystems- Companies that are building vehicles and ecosystems for the potential of high growth and volume will be short of capital, even if they are offering “closed ecosystems” that promise to provide investors with high return for initial investment, these companies are forming travel ecosystems of a scope and nature for which they cannot expend capital to build the competency. Air Travel is a desire more than it is a need and, whether the travel is local, regional, long distant, or international its efficiencies (and accessibility) will be based on distance, time and most importantly the equipment utilized to dictate the ultimate cost, all which in turn determines the specific traveler market (user). Many, if not ALL, of the new vehicles intended for introduction over the next decade, do not yet have proven safety records, nor history of reliability or operational efficiencies necessary for financial success. It is important to recognize that all “true air taxis” will be tested and compared, both to each other and how they operate and navigate the federal, state and local regulatory agencies and rules which are currently being established. The “costs” to implement and comply within this evolving regulatory framework, will ultimately be borne by the traveling public, as well as, the states, cities and towns, which have embraced this mode of travel.

Evolutionary Innovation, Slower Growth Potential, Better Capital Match, Open Ecosystems- Those companies most likely succeed, will choose vehicles (aircraft which meet the criteria discussed earlier) that match their specific needs (targeted travel markets), and which are successfully integrated into the existing operational ecosystems. This approach will permit the companies to build open networks of partners (ecosystems) around shared understanding of market needs and operational feasibility, while concurrently guiding their partners to jointly adapt to the evolving regulatory infrastructure partnerships with regional transportation managers who are open to compatible services.

Financial Success or Failure: Balance of Competency and Capital, Outcome Impacts Capital Availability-The fundamental difference between financial success and failure will be the degree of balance between operating competency and deployment of capital to promote new technology within the new air taxi entrants. The outcome of the leading technology companies will impact the collective industry’s ability to raise both new funding and working capital.

The prior era of new air taxi vehicles and companies had two large, well-capitalized companies that promoted a disruptive innovation model for vehicles,

transport systems and business models. The two companies, DayJet LLC (fleet operator) and Eclipse (vehicle manufacturer) were followed by another four new vehicle entrants, a dozen fleet operator entrants and per-seat, software matching services (ATXA). Both companies made substantial, breakthrough technology advances while concurrently failing to meet their operational and financial performance goals. Both companies cited the macro economic conditions in the first quarter of 2008 as the basis for their failure to achieve goals. However, both venture funding and short distance travel volumes were constant, and increased slightly, until the fourth quarter of 2008.⁹ Both companies sought restructuring under Chapter 11 but instead were liquidated through Chapter 7. The outcome of asset liquidation or conversion to another business model means the potential buyers did not see sufficient market directed value and instead sought to acquire only residual assets. Other companies, such as Adam Aircraft were converted into successful design and fabrication suppliers (Adam Works), because their assets could be used to meet other market needs. The Chapter 7 failures of the leading firms were reported in the professional press,¹⁰ resulting in reduced availability of both investment and working capital for remaining firms. This is likely to be the outcome in the next round of air taxi companies and these new “aircraft manufacturers” that are not owned or affiliated with large entities such as Airbus, Boeing, Textron Toyota, and Honda or alternatively financed and supported through investment vehicles specifically targeted to this new aviation sector.

About Ken Ross and Paul Masson

Ken Ross is the former President of One Aviation Inc., and the President of Eclipse Aerospace Inc., a wholly owned subsidiary of One Aviation. Ken has been CEO/President of multiple companies, including an aircraft manufacturer, parts manufacturing authority (PMA), fixed base operators (FBO), maintenance repair and overhaul (MRO), and aircraft management and charter companies. Ken provides senior executive advisory services through his consulting arm, KR Global Consultants, LLC.

Paul Masson is the Managing Director of Strategic Alliances Resources Network (StarNet) and has been retained by US Federal agencies (DOD, DOE, NASA, DOT), Fortune 500 firms (CISCO) and three aviation sector industry groups to design, organize and advise the governing managers of R&D ecosystems that have commercialized new technology. Paul has a career spanning corporate finance innovation (SRI International), three startup companies and thirty+ years designing and advising multi-party, R&D alliances.

⁹ - Venture Capital Investment Holds Steady at \$7 Billion in Q3 Despite Turmoil in the Financial Markets According to the Moneytree Report, NVCA and PriceWatershouse Coopers press release, October 18, 2008

- The Role of Business Travel in the U.S. Economic Recovery, Oxford Economics, U.S. Travel Association, 2013

¹⁰ “It’s Over: DayJet Files for Bankruptcy”, Chad Trautvetter, AINonline, December 1, 2008