



VELOCITY 1 LLC

THE NEW PARADIGM FOR 21ST CENTURY AVIATION™

WWW.VELLOCITY-1.COM

T 610.570.3881

The V1 Project – Mission Brief

A Proposal to Research the Commoditized Trade of Aviation Infrastructure Capacity

VI is an advocacy platform for creating the free-market provision and consumption of U.S. aviation infrastructure capacity.

The Problem: U.S. aviation infrastructure is under-supplied and over-consumed. The air transportation congestion which this precipitates represents an unsustainable waste of U.S. economic productivity and resources in an increasingly competitive global market place. *VI* recognizes two main causes of this congestion:

1. **Dynamics of under-supply:** Centralized and monopolistic federal agencies such as the DOT, FAA, ATO, and ATC, continue to govern national aviation infrastructure, but consistently demonstrate an irreconcilable inability to keep pace with the free market demand for air travel.
2. **Dynamics of over-consumption:** Entrenched industry and government interests such as the ATA, NBAA, AOPA, NATCA, and Essential Air Service municipalities, rationally seek to protect their equity stakes in the absence of free market mechanisms for determining the economically efficient allocation of aviation resources. This results in too much air travel demand competing for too little aviation infrastructure capacity.

The Proposed Solution: In order to allow air transportation to meet its potential as a critical enabler of U.S. GDP growth, it is proposed that the free market demand for air travel be satisfied by a free market supply of aviation infrastructure capacity. It is recognized that this would represent nothing less than a paradigm shift in the provision and operation of safe-separation airspace and runway environment capacity in the U.S. It is also recognized that this proposal is technologically achievable given *already existing* aviation navigation technology, and that the greatest obstacles to its achievement reside in the realms of public policy and the re-allocation of industry rents and stakeholder equity.

Facilitating the Solution: To facilitate a full and honest examination of this proposal, and to present the holistic value it represents to consumers of domestic air travel, as well as toward the growth of U.S. GDP, *VI* intends to stimulate a national conversation throughout industry, academia, federal bureaus, the legislature and consumer groups. Through this conversation, *VI* will press the proposal that the provision and operation of aviation infrastructure capacity must be released from federal control and be re-created as a *ubiquitous utility* and a *tradable commodity*; much like the free market provision and trade of electrical power generating capacity. It is proposed that the nominal unit of trade should be 4-dimensional airborne trajectories (the 3 spatial dimensions, plus time), in markets defined by the point of departure and the point of arrival.

CREATING THE FUTURE AT THE MARGIN BETWEEN 'THE NOW' AND 'THE NEXT'.™

COPYRIGHT © 2009 BY SCOTT R. DAVIES. ALL RIGHTS RESERVED.

Researching the Proposed Solution - Opening Assessments

This brief begins with several general assessments which are categorized into two groups.

1. General assessments of the early 21st century global economy.
 - For the next several decades, the consumption of global resources will continue to become more constrained as developing nations seek to elevate their standard of living.
 - Nations which are most efficient at turning natural resources into economic productivity (i.e. economic efficiency) will be most successful at competing for global resources and sustaining their national economies.
 - Nations which require the consumption of vast quantities of constrained natural resources for sustaining their economies will become increasingly engaged in on-going military operations in pursuit of securing resource stocks.
 - An efficient national air transportation system is a critical enabler of economic development and GDP expansion. Therefore, it is imperative that nations wishing to compete for increasingly constrained and unstable global resources, on an economic rather than a military basis, must possess an economically efficient air transportation system. *In this regard, V1 considers that economically efficient air transportation will become a strategic national asset in the 21st century.*

2. General assessments of the 20th century U.S. air transportation industry.
 - Deregulation of the air carrier industry did not go far enough. While the Airline Deregulation Act of 1978 succeeded in making commercial air carrier capacity accountable to the free market, it failed to require that federally controlled aviation resources, which are consumed in the fabrication of air travel, must also be accountable to the free market. This flawed decision has saddled the U.S. economy for 31 years with a dysfunctional hybrid economic system comprised of free market forces competing for the consumption of federally built and operated aviation infrastructure. This is comparable to having a federally built and operated national telephone system, the consumption for which consumers would purchase private telephones and hope to gain on-demand access to the system. With no market-driven price accountability for governing demand by the consumer, system consumption would overtake supply. Likewise, with no market-driven cost accountability for ensuring competitive pricing by the supplier, costs would continually exceed tax revenue.

Air transportation solution choices are best viewed as holistic economic systems

In attempting to find solutions to the prevailing state of economic inefficiency and operational dysfunction in the U.S. air transportation industry, policy makers are faced with choosing among three holistic systems of economic structures.

1. Re-regulate the entire industry and attempt to control all of its facets from within the federal realm.

- Re-regulation would require a major element of the federal government to run the air transportation industry on an almost daily basis. There are many sound economic reasons why the federal government does not run a national telephone system, or the generation and transmission of electrical power, or the provision of RF spectrum and internet broadband services. Chief among them is that resources would not be efficiently allocated and would therefore be hoarded or wasted in the fabrication of national productivity. This is economically unsustainable.
 - The industries mentioned are all basic commodities that help to drive and expand a developed economy. As a critical enabler of GDP growth, air transportation should be considered in the same strategic regard. As such, re-regulation of the air carrier industry is neither an economically sound, nor sustainable solution.
2. Maintain the prevailing hybrid economic system of free market air carrier capacity and federally built and operated aviation infrastructure.
- This would require continuing to apply economically inefficient ‘patch’ solutions to the federal operation of aviation infrastructure in an attempt to meet the free market demand for air travel. These time-late patches by the FAA have failed to meet the free market demand for air travel in every economic ‘up’ period since the beginning of (partial) deregulation.¹ *VI* proposes that this has not always been due to some intrinsic fault in each particular patch solution. Rather, the larger fault has existed as an inherent dysfunction in the hybrid economic system comprising our entire national air transportation industry.
 - Even with the fabrication of the ‘NextGen’ air navigation system, infrastructure capacity will continue to remain disconnected from the free-market demand for air travel, as it is fully expected that the prevailing hybrid economic system will remain in place. Accordingly, even though ‘NextGen’ is being engineered to provide 2-3 times the current level of infrastructure capacity by 2025, it will still be operated within an economic system that is slow, rigid, and economically inefficient compared to the free-market demand for air travel. This economic system has not succeeded in mitigating air transportation delays in the past. *VI* suggests that it is inappropriate to have faith that it will succeed as an optimal solution for the future.
3. Fully deregulate the industry and allow market forces to determine the most efficient and effective allocation of ALL aviation resources.
- The fully deregulated aviation resources being referred to include the provision and operation of runway environment capacity and safe-separation airspace capacity. This system choice would include retaining federal safety and operational oversight in the aviation industry, as is the case with so many industries which are critical to the well-being of the U.S. economy.

¹ Creating a Safer and More Reliable Air Traffic Control System. Dorothy Robyn and Kevin Neels. The Hamilton Project of The Brookings Institution. July, 2008. Pgs. 11-12.

The third choice will strategically prepare the U.S. economy for the 21st century

In light of the challenges and inefficiencies associated with the first two economic system choices mentioned, *VI* proposes that it is time to vigorously study and broadly discuss the full de-regulation of the air transportation industry. The level of deregulation proposed by *The VI Concept of Air Transportation Management* includes the systematic transfer of the FAA's Air Traffic Organization into the commercial realm. And in a scenario which is somewhat akin to the 1984 breakup of AT&T, this would also include the follow-on establishment of a constellation of independent free-market utilities. These utilities would provide air navigation services. Using 'NextGen' technology, they would offer optimal 4-dimensional trajectories (4DT's) between city pairs as requested and bid on by commercial air carriers. These 4DT's would combine elements of runway environment capacity and safe-separation airspace capacity, which would be consumed as commodities.

In essence, *The VI Concept of Air Transportation Management* proposes a paradigm shift which would move away from the status quo of federally provided and operated air traffic control, and toward an operationally expansive and economically sustainable system of market-based air transportation management. This system of free trade would be a fundamental underpinning of an air transportation system designed to strategically support U.S. GDP growth in the 21st century.

The market for 4-dimensional trajectories

Consumption of 4DT's between city-pairs would be bid on by providers of air carrier seat and freight capacity. It is envisioned that carriers would offer prices for optimal trajectories which would afford the minimum consumption of time and/or fuel. Bid prices would be based on time of day, atmospheric conditions, great circle routing, aircraft type, and planned load. The most cost-efficient air carriers would be capable of bidding the highest prices for the right to consume desired 4DT's. Carriers would also be naturally driven toward operating larger aircraft on these trajectories in order to divide the costs of 4DT's by as many revenue generating units as possible. This division of costs would be used to provide competitive seat and freight pricing to the air travel market. In essence, the inclination to use larger aircraft would increase air transportation throughput by natural market means.

Since atmospheric conditions can be somewhat anticipated in seasonal cycles as far out as a year, markets could exist for annual, seasonal, quarterly, weekly, daily and spot bidding. As with many other commodities, it is also conceivable that markets would evolve for trading in 4DT futures, options, and derivatives. Hedging against the potential loss of a 4DT due to the unforeseen development of severe weather conditions would also evolve and would allow a time efficient and organic contingency for keeping air traffic flowing toward intended destinations. It is proposed that the combined use of these market mechanisms would produce the most economically efficient allocation and consumption of aviation resources.



A few proposals for conducting research

There are at least two primary questions which this research would seek to answer:

1. Will the free-market provision, trade, and consumption (i.e. commoditization) of optimal 4-dimensional airborne trajectories cost less to the U.S. tax payer and the aviation consumer than the tax-based federal control of aviation infrastructure?
2. Will the commoditization of optimal 4-dimensional trajectories provide the U.S. with an operationally nimble and economically efficient air transportation system that can support GDP growth in the globally competitive economy of the 21st century?

In pursuing this research, *VI* proposes that models for the trade of commodities in other industries may exist which can be adapted for creating a market structure for the trade of 4DT's. Two places to begin this search would be the Chicago Mercantile Exchange and the electrical power generation and transmission industry. Through this research, *VI* would attempt to create a model of an expansive and adaptable economic system structure with the purpose of sustaining an economically efficient air transportation system.

The VI Concept of Air Transportation Management is an independent research proposal. The full version can be downloaded at:

<http://velocity1llc.files.wordpress.com/2009/08/v1catm-web-v1-1.pdf>