

ENTREPRENEURSHIP & INVESTMENT SYMPOSIUM (E6)
Dynamics of Entrepreneurship (1)

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AIMING TOWARDS VIABLE BUSINESS MODELS OF GLOBAL HYPERSONIC POINT-TO-POINT
CARGO TRANSPORTATION

Abstract

Both public and private organizations are currently determining how to develop future supersonic and hypersonic reusable vehicles. Many of these vehicles are being designed for very specific missions depending on the business models within which they are being funded. This paper builds upon previous analyses by the authors through an expanded investigation of the economics of a global point-to-point cargo transportation network that could be served by various hypersonic vehicle concepts. The sample networks consist of various sets of global cities. The authors have developed several models to examine both the traffic times and fleet size requirements for to serve such a network. The GHoST [Global Hypersonic Shipping Time] calculator is used to compare input vehicle capabilities to the capabilities of existing package delivery services, and measure how much improvement is possible along these long-distance international routes. The second model, Descartes-PTP (Point-To-Point), uses Arena (a discrete event simulation software package) to simulate a network as a whole, determining for a given vehicle what fleet size and turnaround time are needed to support worldwide operations. These simulations are tied into the Cost and Business Analysis Module (CABAM) for financial, business-case evaluation of a particular combination of network traffic schedule and fleet size. For this examination various economic case studies are presented for notional vehicles and city pair combinations. The specific market being examined is the global delivery chain of high priority commercial packages. Outputs of Net Present Value (NPV), government development assistance, investment injections, and market size for these various case studies are developed in order to determine characteristics of potentially viable business models.