



Northwestern University Transportation Center presents:

Public-Private Partnerships for Transportation Safety: Case Studies in Air and Rail

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ABSTRACT: Noting a continuous decline in accidents, the aviation industry during the mid-1990s viewed itself as an extremely safe mode of transportation. However, a number of high-profile accidents by U.S. carriers called into question whether the accident record of aviation safety could reliably stand as the measure of safety health and culture within the industry. As a result, the government undertook a unique approach to collaborating with industry by developing rigorous safety management systems culminating in a highly successful public-private partnership for aviation safety.

Given the many similarities between air and rail systems, recent high-profile railroad accidents raise questions of whether the rail industry may benefit from a similar collaborative structure for safety. This paper begins by describing the structure of the aviation system's collaborative safety culture through successful public-private partnership, the safety management system (SMS) framework, an evolving regulatory and legal framework, and data-sharing environment. To understand the evolution of this approach, the historical context of the necessary socio-technological elements is also presented along with an analysis of how the industry-government trust relationship evolved into the current culture. Drawing parallels between the aviation and rail systems, the opportunity space is explored for applying an equivalent approach to rail safety.

BIO: Laurence Audenaerd, PhD, is a Lead System Engineer at the MITRE Corporation with 15 years of experience in engineering, decision and policy analyses for a variety of transportation problems across a broad range of entities. Through his work supporting the Federal Aviation Administration, Department of Defense and NASA, Audenaerd has worked with detailed aviation system design, operational and safety risk analyses, and economic impacts for manned and unmanned civil and military aviation; He has published numerous papers on aircraft wake turbulence, terminal area weather analyses, and . He is currently an active member within several industry groups such as the Transportation Research Board and Transportation Research Forum and is a member of the Aeronautical Information Services Data Link committee of the RTCA, a technical standards board to the FAA. Working with surface transportation, Audenaerd has researched the impacts of public transit and regional travel issues including most notably a report on the regional economic impact for maintaining Chicago area transit in a State of Good Repair. Finally, Audenaerd maintains a strong interest in multi-modal issues and collaboration following his doctoral research in surface mode substitution for short distance air travel at Northwestern University. Additionally, he holds a Masters in Civil Engineering and Operations Research from Princeton University, a Masters in Industrial and Systems Engineering from Rutgers University and a Bachelors in Mechanical Engineering from Stony Brook University.