

Navigating Turbulence: Adaptive Governance and Resilience in Air Transport Systems

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Abstract:

The COVID-19 pandemic has been one of the most disruptive events in the history of global aviation, exposing both structural vulnerabilities and the limits of adaptability within airport management systems. This study examines how the Bucharest Airports National Company (CNAB) responded to the crisis as part of the European air transport network, emphasizing the mechanisms through which resilience developed via organizational learning, coordination, and adaptive governance.

Using a mixed-methods design, the research combines quantitative analysis with qualitative document review to reveal how operational, financial, and managerial factors interacted to shape CNAB's adaptive response during the pandemic.

Findings indicate that recovery was supported not only by external regulatory frameworks but also by internal mechanisms, including decentralized decision-making, digital integration, and continuous feedback between operational and administrative subsystems. Econometric results highlight strong short- and long-term interdependencies between passenger traffic, aircraft movements, and digitalization, while the SRI positions CNAB as a highly adaptive node within Central and Eastern Europe's aviation network.

The study concludes that resilience in aviation arises from the dynamic interaction of human, technological, and institutional subsystems. CNAB's transition from reactive crisis management to adaptive governance offers a transferable framework for assessing resilience across other critical infrastructure sectors.

Keywords: resilience, adaptive governance, air transport, econometric modeling, digital transformation, COVID-19, complex systems

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