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WORKING PAPER

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SEVENTH WORLDWIDE AIR TRANSPORT CONFERENCE (ATCONF/7)

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Agenda Item 4: Emerging technologies, new business models and other associated aspects
4.3: Leveraging air transport data and the digital ecosystem for seamless, secure and resilient operations

DIGITAL PUBLIC INFRASTRUCTURE FOR AVIATION

(Presented by Kazakhstan)

EXECUTIVE SUMMARY

Civil aviation authorities each build and maintain similar digital systems for licensing, oversight, reporting and data exchange, often at high cost and with uneven results. The digital public infrastructure (DPI) model, based on shared, interoperable and reusable digital building blocks, offers a way for every authority to deliver these functions efficiently and securely. This paper presents the model and Kazakhstan's experience with it and suggests that a set of voluntary common digital building blocks for State regulatory and economic functions, aligned with the Aviation Cybersecurity Strategy, could address cost, data quality and cyber resilience together.

1. INTRODUCTION

1.1 Leveraging aviation data and the digital ecosystem is essential to seamless, secure and resilient operations. Much of the data that ICAO and States rely on originates in the systems that authorities use for licensing, certification, surveillance and reporting.

1.2 These systems are frequently built State by State from the ground up. The result is duplicated cost, inconsistent data, and a wide range of cyber-security maturity across authorities.

1.3 Kazakhstan has made digital delivery of State services a national priority and has applied it to civil aviation oversight. That experience shows both the gains available and the cost of building alone.

2. DISCUSSION

2.1 The concept of digital public infrastructure, based on shared, interoperable and reusable building blocks such as identity, registries, data exchange and payments, has been applied in other public sectors to deliver services more efficiently and consistently. The same approach can serve civil aviation.

2.2 Common building blocks for aviation might include standard data models for licensing and certification, interoperable registries of aircraft, personnel and organizations, secure data-exchange interfaces, and shared reference components that smaller authorities can adopt rather than build.

2.3 Three benefits arise together: lower cost, because authorities reuse rather than rebuild; better data quality and comparability, because building blocks share common standards and feed the International Civil Aviation Organization (ICAO) reporting consistently; and stronger cyber resilience, because shared components can be secured and maintained to a common standard rather than left to each authority's resources.

2.4 The approach should be voluntary and modular, allowing States to adopt building blocks as they choose, to retain national control of their own data, and to align with ICAO's information-management frameworks, the Aviation Cybersecurity Strategy and the Cybersecurity Action Plan (CyAP).

3. CONCLUSION

3.1 Fragmented, State-by-State digital systems raise cost, weaken data quality and leave uneven cyber resilience across the system.

3.2 Kazakhstan considers that common, reusable digital building blocks would let every authority deliver its regulatory and economic functions more efficiently and securely and would improve the quality of the data on which the system depends. Kazakhstan suggests that ICAO could consider this approach within its information-management and cybersecurity work and invites interested States and development partners to exchange experience.

3.3 The Conference is invited to note the information contained in this paper.

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