
PKD Board Annual Report 2023

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PKD Board Discussion Paper

Forwarded by: 2023 Chairperson

Reference Document(s): B-Pub/68 - PKD Board Annual Report 2022 dated 17.02.2023

BACKGROUND

The MoU, Attachment C, paragraph 1.2 states the following:

"1.2 The PKD Board is the standing body responsible for the ICAO PKD. Its duties will include:

...

j) submit to the Participants an Annual Report on its activities and other relevant issues in the preceding year on or before 31 October;"

PURPOSE

This Discussion Paper is intended to fulfil the MoU requirement.

URGENCY

This report should be considered by the Board through written procedure in order to allow for publication on the ICAO public website in a timely manner.

PROPOSAL**PKD Board Annual Report 2023****Purpose**

Based on, and in continuation of the previous PKD Board Annual Reports, the present Annual Report gives an overview of the development of the PKD as well as important activities of the PKD Board in the year 2023.

1. PKD Organization – PKD Board, Executive Body Meetings**a) PKD Board**

The 30th meeting of the PKD Board took place in Willemstad, Curaçao on 8 and 9 November 2023. Some 75 attendees from PKD participating States and International Organizations joined the meeting. A variety of organizational, technical and financial matters were discussed and decisions made regarding update of PKD services, application of user fees, extension of use to private sector entities, enhancement of capacity building efforts and their alignment with related initiatives, and launching of a PKD tender process for PKD services from 2026. A technical workshop was organized alongside the Board meeting on 7 November 2023 that provided an opportunity for participants to share technical insights, share information and experiences regarding organizational and administrative structures that support PKD usage nationally and learn how to obtain full and optimal benefits from PKD participation.

During the meeting, it was agreed that Mr. Mario Wiesen (Luxembourg) would be the 2024 PKD Board Chairperson and that Mr. Cor de Jonge (Netherlands) would be the 2024 PKD Board Vice-Chairperson.

Representatives of Australia, Canada, Cameroon, Japan, Luxembourg, New Zealand, and the USA were elected by a secret ballot and nominated by the Board to occupy the seven vacancies arising from the ending of Board terms. The ICAO Council approved this proposal on 28 November 2023.

b) Executive Body

The group convened in San Francisco, USA on 16 March 2023 and in Luxembourg, Luxembourg on 7 June 2023. Across both meetings, it managed implementation of system updates in coordination with the Operator, considered updates on the progress of the PKD private sector use pilot while developing recommendations for next steps, decided on countries to receive coaching under the Data Quality Coach programme in line with the mandate given by the Board, considered alignment of capacity building within PKD and TRIP programmes, as well as the timeline and organization of the PKD tender process. It also advised on final preparations for the 30th PKD Board meeting and workshop and a variety of promotional activities.

Attendees of the 30th Board meeting elected Mr. Osman Shah from Canada and Mr. Roman Vanek from Switzerland as Executive Body members for a two-year period to November 2025.

c) Contract Support Group

At its 29th meeting, the PKD Board reactivated the Contract Support Group as a subgroup of the Board tasked with delivering the Terms of Reference and associated planning documentation for a Call for Proposals for PKD service delivery following the termination of the existing operator contract in March 2026.

The group was chaired by Mr. Erik Johnson from the United States and constituted additional experts from Australia, Canada, Iceland, Luxembourg, Netherlands, New Zealand, Uganda, and the United Kingdom throughout 2023. It met in San Francisco, USA on 14 and 15 March 2023, in Luxembourg, Luxembourg on 8 and 9 June 2023 and in Montreal, Canada on 15 September 2023. The group delivered its proposals to the Board at the 30th Board meeting. The Board, meanwhile, agreed that the Group remain constituted to further support the tender evaluation process in 2024 and beyond.

2. PKD Administration

a) Membership Fees

The fees for 2023 were approved by the PKD Board to consist of an ICAO fee of US\$ 6,895.45 and an operator fee of US\$ 16,850, thus totaling US\$ 23,745.44 (compared to US\$ 25,096.25 in 2022). In 2023, the annual fee decreased compared to previous years due to cost sharing among an increased number of members. As per the PKD operational contract signed in April 2016, the PKD operator fee decreases as the number of PKD participants increases and such participants become active. The ICAO fee also decreased compared to previous years as the cost decreases associated with PKD participation growth outweighed cost increases associated with new services and inflation.

70 Participants	USD 19 250
75 Participants	USD 18 000
80 Participants	USD 16 850
85 Participants	USD 15 850
90 Participants	USD 14 950

Table 1. Operator fees for the ICAO PKD system relative to the number of active PKD participants

b) Participation

In the course of 2023, four new PKD Participants were welcomed. Specifically, Bermuda (United Kingdom), Costa Rica, Jamaica, and Namibia joined the PKD.

Together with Australia, New Zealand, the United States, Canada, the United Kingdom, Japan, Singapore, Germany, Republic of Korea, France, China, Kazakhstan, India, Nigeria, Switzerland, Ukraine, Latvia, the Czech Republic, Macao/China, the United Arab Emirates, Hong Kong/China, Slovakia, the Netherlands, Morocco, Austria, Hungary, Norway, Bulgaria, Luxembourg, Sweden, United Nations, Spain, the Russian Federation, Malaysia, Argentina, Thailand, Ireland, Moldova, Belgium, Brazil, Qatar, Seychelles, Uzbekistan, Philippines, Iran, Colombia, Romania, Finland, Benin, Botswana, Kuwait, Georgia, Turkey, Iceland, Oman, Turkmenistan, Peru, Barbados, Panama, the European Union, Mali, Cote d'Ivoire, Serbia, Belarus, Bosnia and Herzegovina, Croatia, Egypt, Indonesia, Italy, the United Republic of Tanzania, Uganda, Bangladesh, Togo, Ecuador, Rwanda, Sudan, Lesotho, Mexico, Ghana, Nepal, Viet Nam, Mongolia, Cameroon, Zimbabwe, Belize, Vanuatu, Saudi Arabia, Bahrain, Kenya and Iraq, there were 94 PKD Participants at the end of 2023.

3. Technology, System Maintenance and Evolution

The PKD system remained stable in operation throughout 2023. No instances of unplanned downtime were noted throughout the year. Services to participants were maintained with 100% availability. The annual audit undertaken in December 2023 confirmed full functionality without error.

a) PKD System Upgrade

A full system software upgrade was undertaken in September 2023. Go-live of all updates was coordinated across PKD sites such that service operations continued seamlessly.

b) Adding Barcode Signer Certificates to the PKD

The changes necessary to allow inclusion of Barcode Signer Certificates associated with ICAO Visible Digital Seals (VDS) and Visible Digital Seals for Non-Constrained Environments (VDS-NC) in the PKD were implemented in 2023. The changes included the addition of appropriate repository space, offering of relevant conformant checks and updates of associated documentation. The service went live for all PKD participants in November 2023 and participants are now using the service to share the certificates internationally.

c) ICAO CSCA Master List

The ICAO CSCA Master List, first published in March 2020, continued to grow through 2023. Twenty-two key import ceremonies were completed in 2023, eight of which involved in-person deposit by a representative in Montreal. The Master List available online and through the ICAO PKD at the end of 2023 contained 394 certificates from 78 different document-issuing entities.

d) ICAO Health Master List

The ICAO Health Master List, first made available on the ICAO PKD website in January 2022, provides the public key certificates required for electronic verification of digital health proofs (i.e. digital certificates of vaccination, testing and/or recovery) presented during travel. During its 29th meeting (October 2022), the PKD Board agreed that the Health Master List should be maintained and offered free of charge to all as a Global Public Good and as a measure that can better assure aviation's resilience to future health-related challenges such as communicable disease outbreaks.

The Health Master List is made available based on an innovative partnership with a Luxembourg State Agency that provides the hardware, infrastructure and software for ICAO's maintenance of the Health Master List. The Agency has agreed to continue supporting the service as requested by the Board.

The Health Master List available through the PKD at the end of 2023 contained 13 certificates from 11 health document issuing entities.

e) Private sector use of PKD data

The pilot on private use of PKD data, launched in May 2021, continued through 2023. Twenty-six new companies joined the pilot during 2023, meaning that a total of forty-one were participating as of December 2023. All participants have authorization to use data from the PKD – the Master Lists and data obtained from the public download site – within their own solutions, products and projects, subject to certain limitations included in the authorization agreement that they have concluded pertaining to matters such as use cases and service offerings to states. The agreements absolve them of the requirement to comply with the commercial use clauses of the Terms and Conditions published on the download pages.

In surveys and discussions concluded with participating companies through 2023, all feedback on the pilot has remained positive. ICAO Council was briefed on progress with the pilot, feedback given and typical use cases being explored on 3 May 2023. Council also took note of the PKD Board's recommendations to explore introduction of a new private sector use programme as a follow-up to the on-going pilot as well as an overview of work underway within the ICAO Secretariat to prepare necessary texts/instruments for a future licensing agreement for use of PKD data by the private sector. Further governance discussions will follow through 2024 and beyond.

Free-of-charge pilot participation continues to be offered and companies continue to enrol in the pilot.

f) PKD Usage

The contents of the PKD also continuously grow as participants continue to upload their relevant data. Table 2 shows PKD contents in the final three months of 2023.

	Certificates	CRLs	CSCA Master Lists
October 2023	20 403	58	20
November 2023	20 701	59	21
December 2023	21 000	60	21

Table 2. Contents of the PKD repository at the end of 2023

g) Capacity Building

On 7 November 2023, the PKD Board hosted a PKD workshop alongside its meeting in Curaçao. The workshop brought together participants from the island authorities, its neighbours and the community of PKD participants attending the associated Board meeting. Presentations by experienced PKD participants and the ICAO Secretariat were interspersed with discussion sessions to facilitate information and insight sharing and exploration of topics of interest to all. Presentations covered a variety of administrative and technical matters, with more general and basic information provided earlier in the day to ensure foundational understanding and more complicated technical matters covered later. A representative of the Netherlands provided a deep dive into technical setups to make full use of the PKD and its data in the afternoon and provided a dedicated workshop manual and software resources that participants took back for continued study and use in their work. Formal feedback was obtained from all participants that will be utilized to shape future events of a similar nature planned in the coming years.

Three countries participated in the ICAO PKD Data Quality Coaching programme in 2023. Mongolia continued to receive coaching from an expert from Luxembourg, with all parties agreeing that the partnership should continue beyond the initially planned termination date of December 2022 to assure attainment of full value. Uganda kicked off a partnership with a coach from the United Kingdom in June 2023. Both parties have engaged in regular video calls to share information and insights, and the work is continuing into 2024. Barbados began working with a coach from the United States in July 2023 and cooperative work continues in a similar vein. A visit by the coach to Barbados is planned in early 2024, reflective of the positive progress made through the partnership that supports planning for a visit to assure continuity and sustainability of PKD-related activities in the States beyond the conclusion of the coaching partnership.

Preliminary plans have been made for the participation of Cameroon, Nigeria and Sudan in the program in the near future. The Secretariat continues to be open to receiving further requests from interested States.

The Frequently Asked Questions (FAQ) section of the ICAO PKD public website was examined during 2023 and updates prepared by the Secretariat and the Executive Body to ensure accuracy. The updated FAQ were published on the website in November 2023.

The PKD Executive Body undertook analyses through 2023 to ensure alignment and complementarity between the capacity-building work of the PKD and the efforts of the Implementation and Capacity Building Working Group (ICBWG) of the TRIP Strategy. A dedicated discussion was organized with the Chairperson of the ICBWG at the 9th PKD Executive Body meeting that took place in San Francisco in March 2023. The Board has mandated further consideration of this matter through 2024 and thus cooperative efforts are anticipated to be ramped up in the coming months and years.

4. Promotional activities

The Secretariat and PKD community delivered presentations and participated in panel discussions at a variety of events through 2023 in order to raise awareness of the PKD and its relevance. The Chairperson of the Board delivered a presentation on the PKD and the work of the Board on private sector use of PKD data at the 18th ICAO TRIP Symposium in September 2023. The Secretariat delivered presentations on optimizing usage of the PKD, PKD conformance checking services and the Data Quality Coach initiative at the TRIP Regional Symposium that took place in Almaty, Kazakhstan in December 2023. The Secretariat also coordinated an information session on the PKD, including presentation of an Information Paper, at the Technical Advisory Group on the TRIP (TAG/TRIP) that took place in October 2023.

Several members of the ICAO PKD Community participated in the Identity Week 2023 Europe event in Amsterdam, Netherlands on 13 and 14 June 2023. A representative of the Netherlands delivered a keynote presentation on PKI, acknowledging the important role of the PKD. The Secretariat, meanwhile, delivered its own presentation on the PKD as well as a separate session on the PKD private sector pilot, the latter with support from the Deputy Chairperson of the PKD Board. A presentation on PKD and the Health Master List was delivered at the online joint ITU/WHO Workshop on Trust Frameworks for Digital Personal Health records that took place in the Republic of Korea on 11 September 2023.

Discussions were held with potential PKD participants across 2023. State experts, members of the TRIP community, Ambassadors and State representatives were engaged to ensure understanding of the PKD, its benefits and approaches to assuring full use of PKD participation. ICAO Regional Offices also shared information on the PKD at all regular meetings of the Director Generals of Civil Aviation and all Aviation and Security regional focus meetings throughout 2023.

The PKD video, originally prepared by Luxembourg, was translated into all ICAO official languages (Arabic, Chinese, French, Russian and Spanish) and made available through the ICAO PKD website to the general public in June 2023.

A variety of written promotional materials have also been developed and shared. A brochure on capacity building available through the PKD community is now available that is complemented by a brochure presenting the TRIP Implementation and Capacity Building Working Group (ICBWG) and opportunities for capacity building through that group. Two articles on the PKD were published in the 6th Edition of the World Civil Aviation Report released in 2023 and available free of charge on the ICAO eLibrary. The articles in this edition focus on the ICAO Health Master List and the Private Sector pilot project and provide information on these initiatives tailored to a general interest audience.

A new ICAO Aviation Security and Facilitation newsletter was launched in 2023 and regularly includes reporting on PKD key import ceremonies, PKD workshops and meetings, and other PKD-related activities.

The Secretariat also continued regular social media activity providing information and insight on the PKD throughout 2023. Regular #FactFriday posts provided factual information on PKD programmes and developments while posts also referred to PKD key import ceremonies, governance meetings, presentations at various events and the joining of new PKD participants.

Conclusion

The ICAO Public Key Directory programme has enjoyed another successful year in 2023. The community continues to grow, new services such as the inclusion of Barcode Signer Certificates in the PKD offer more value to participants and users than ever before while novel initiatives, such as the private sector use pilot and Data Quality Coach initiative, are allowing innovative exploration of future developmental possibilities.

The Chairperson would like to acknowledge all the work provided by the entire PKD community and the many experts and stakeholders with whom the community interacts for their positive contributions and proactive engagements to support continued growth of the PKD program.

The Chairperson and the Board look forward to continued enhancement of service provided to participants through the PKD and further enlargement of an active PKD community in the coming years.

Mr. Mario Wiesen
2023 Chairperson
(on behalf of the ICAO PKD Board)

February 2024
