Data4Safety FAQ

29th of August 2022

➔ **What is Data4Safety?**

Data4Safety or **D4S** is a **voluntary, joint cooperative partnership** within the aviation community for the sharing and analysis of data in Europe.

Key elements of the programme are:

- A **voluntary and joint cooperative partnership** amongst all stakeholders
- **Independent governance** to reflect the partnership and collaborative approach (dual management authorities/industry)
- A **Data Protection and Processing Organisation (DPPO)** with Big Data competence
- Outcome shared for the benefit of the community: risk identification and analysis
- **Compatible with other international initiatives** (US ASIAS, Asia-Pacific, IATA FDX)

➔ **Why a Programme like D4S for Europe?**

The *Data4Safety* programme's vision is to establish a voluntary, cooperative partnership within the aviation community, for the sharing and analysis of data, with the view to make the European aviation system even safer.

➔ **Objectives of the Programme?**

The programme will organise the impressive and growing number of available data stores scattered in the different organisations of the European aviation system. This will provide a critical mass of data and enable data fusion to analyse safety risks in their global context at the European scale.

Key objectives of the Programme are:

- Structure the growing number of available data stores scattered in the different organisations,
- Provide a critical mass of data and enable data fusion.
- Organise available analysis capabilities by offering a common European platform to evaluate and mitigate systemic safety risks in a predictive manner.

➔ **D4S Roadmap?**

In 2015, EASA commissioned a **Feasibility Study** for a programme that would take advantage of Big Data technologies and apply it to aviation safety data. The objective of the study was to see if such a big data programme could be realised in the European Union. The outcome of the study was positive on the technical feasibility aspects and it was recommended to start out the programme with a "Proof of Concept" phase - or PoC. This PoC would address a limited technical scope with a smaller group of partners in order to test the technical solutions as well as the governance aspects of the programme.

In April 2016 a number of organisations that indicated their support for such an initiative during the consultation of the Feasibility Study were invited to become founding members of the D4S programme during the PoC that would last for approximately five years.

When successful, the PoC will gradually end in 2022 so as to start the development of an operational version of the Programme over 2022-2026.

➔ **D4S Principles?**

The D4S programme is based on the following key principles:

Collaborativeness

The success of the *Data4Safety* programme is reliant on a cooperative effort involving the entire aviation community, the European institutions, oversight authorities, industry and unions. The programme members contribute the programme in a cooperative manner.

Voluntariness

The programme is a partnership that is joined or left by the members on a voluntary basis.

Confidentiality

The programme members commit to confidentiality in relation to all data and intelligence derived from the programme. A member may voluntarily choose, in the interests of safety, to allow access to the identified data it supplies under the conditions specified in the rules and procedures document.

Just Culture

The programme is aligned with the Just Culture principle as defined in European regulation 376/2014 and the European Corporate Just Culture Declaration.

Safety only

The goal of the programme is safety. The programme supports the identification and assessment of the systemic risks at European level as well as the measurement of safety performance. The programme also supports the members in enhancing their own safety performance. The programme is designed to enhance safety performance and may not be used for any other purpose. The programme will not be used for   targeted oversight on a given organisation or individual, or for seeking mercantile gain.

➔ **D4S Membership?**

Membership of the D4S programme during the PoC is limited to the founding members including a few Airlines who volunteered to support the demonstration phase of the Programme.

By the end of the PoC, the programme will gradually open up to other aviation stakeholders. The initial focus will then be on fixed wing CAT operations. Other categories will be included at a later stage.

➔ **Data4Safety programme and Operators' FDM programmes?**

Unsurprisingly, some of the outputs of the D4S programme will be very similar to the outputs of an operator's FDM programme. However, D4S does not replace an operator's FDM programme due to inherent structural technical differences especially regarding the granularity of the outputs of each system (D4S addresses mostly the systemic level).

D4S will however provide a comparison for key FDM metrics between an operator's own data and the aggregation of the data provided by other member operators ("blind-benchmarking").

➔ **Cooperation with similar programmes in the world?**

The D4S programme is comparable to the ASIAS programme that has been run successfully in the USA since 2006 with similar objectives. In order to ensure compatibility of the analysis results of each programme, EASA and FAA are closely cooperating. This cooperation is limited to the exchange of information, technology and know-how. Any exchange of aviation data sources is explicitly excluded.

In order to develop and support the compatibility of the programmes, it is foreseen to use a common test set of data that consists of a limited number of de-identified records provided by each programme.

Similar to the cooperation with ASIAS, D4S is also in contact with other programmes such as IATA FDX and AP-Share in Southeast Asia. Similarly, this cooperation is limited to the exchange of information, technology and know-how. Any exchange of aviation data sources is explicitly excluded.

➔ **D4S Governance?**

The D4S programme is run by a Steering Board (SB) consisting of ca. 15 members under co-chairmanship of EASA together with one other SB member. Decisions by the board are taken on a consensual basis.

For day to day operations, a Technical Board (TB) has been set up with the same number of seats as the Steering Board and under co-chairmanship of EASA together with one other TB member.

The TB may set up Task Teams consisting of subject matter experts and at least one TB member to perform certain specialised tasks.

The Big Data and Data Science capabilities needed for the D4S programme are provided by two external partners. The Data Protection and Processing Organisation (DPPO) will provide data protection, storage and processing while the Data Analyst Provider will bring the necessary analysis capabilities.

These external partners have been selected by an EU tender process. These contracts are publicly available in the EU eTendering platform:

- [Data Protection and Processing Organisation (DPPO)](#)
- [Data Analyst Provider (DAP)](#)

Additionally, the programme may cooperate with other non-commercial partners such as universities or research centres to secure specific know how that may be needed for certain analysis tasks.

The D4S governance process is described in a number of documents available on request from the D4S Technical Board co-chairmanship.

➔ **D4S funding and resources?**
The D4S PoC was funded by a grant awarded by the EU Commission.

The model for the long-term funding of the programme is subject to a study commissioned by EASA currently underway.

Staff (in particular expertise) and other resources (e.g. data sources) for D4S are contributed by the programme members.

➔ **D4S and Data Protection?**
Data protection in D4S is described in a data governance document. Protection measures include a combination of technical, procedural and procurement instruments while also taking into account EU law (notably Regulation (EU) No 376/2014[1] and Regulation (EU) No 2016-679[2]) and national law as applicable to each D4S member. This document also describes who has access to which data on the D4S platform.

➔ **Why does D4S gather the raw FDM data from its member operators?**
Amongst data from various other sources, the programme uses raw FDM data from the D4S member airlines. This choice was made in order to ensure consistent data conversion protocols are used across the different FDM data sources to convert the raw data into engineering units that are then used to run the analysis algorithms on the big data platform.

➔ **What is the data retention period considered by D4S?**
The programme uses a data retention period of **six years**. This was deemed long enough by the programme members to provide a meaningful history for trend analysis while older data that might have become less relevant is not taken into account.

➔ **Why de-identification of the data is not made irreversible?**
Records and data are fused only on a need basis, mainly for efficiency reasons. Also, new data sources may need to be added to the data lake as the programme develops and fused to other data sources. Hence the need to keep the identifiers accessible to the data fusion process along time via reversibility of the D4S de-identification under strict conditions and supervision of the programme members.

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[1] REGULATION (EU) No 376/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 3 April 2014 concerns the reporting, analysis and follow-up of occurrences in civil aviation
[2] REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 concerns the protection of natural persons with regard to the processing of personal data and on the free movement of such data,

➔ **How is the data transferred from the data owner to the D4S platform?**
The technical means used to transfer data to the D4S big data platform can largely be chosen at the convenience of the data provider, in cooperation with the DPPO.

While D4S is intended to use data from all flights as much as possible, there may be occasions where a data owner cannot or is not willing to share certain data records. Structural exclusion of such data shall be communicated to the Programme while any ad-hoc decisions to retain flight data from being transferred can also be accommodated. In order to prevent unwanted sharing of data, a delayed upload protocol may be used by the data owner.

➔ **Can data be removed from the platform on request of the data owner after it has been transferred?**
➔ Data owners can always request the DPPO to remove any shared data from the big data platform.

➔ **Are the outputs of the programme de-identified?**
All the outputs of the Programme are de-identified. This is agreed for each type of outputs by consensual decision of the Steering and Technical Boards.

➔ **D4S Analysis Process?**
Analysis topics are discussed and decided upon by the Steering Board. The Steering board considers the recommendation of the Technical Board for the work programme but topics may be suggested via other (external) channels. A formal process to handle such requests is currently still under development.

Analysis outputs are divided in metrics, blind benchmarking and directed studies. During the next phase of the Programme, the objective is to complement these families of outputs with "vulnerability discovery".

Analysis outputs are shared between the D4S members via a dedicated programme portal (e.g. Metric dashboards). Subject to SB approval, aggregate results will also be shared with the wider aviation community for the benefit of the aviation sector.