ICARUS

NEWSLETTER

ISSUE 3

October 2020

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ABOUT ICARUS

Full Title:
Aviation-driven Data Value Chain for Diversifed Global and Local Operations

Co-funded by the European Commission. Horizon 2020 - Grant #780792.
ICT-14-2017: Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation

THE INFORMATION CATALYST FOR AVIATION SERVICES

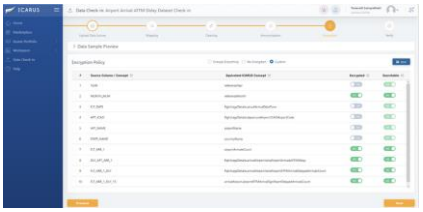
WWW.ICARUS2020.AERO

LATEST ACHIEVEMENTS

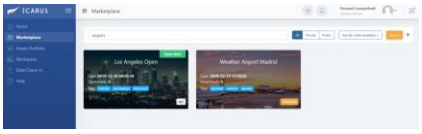
The ICARUS beta platform will soon officially welcome its external early adopters. In the meantime, we provide you with a quick sneak peak of its 3 core workflows for a data provider and a data consumer in the aviation data value chain:

Data Check-in:

- Better understanding of the data that you are uploading through **semantic enrichment, harmonization and putting to the appropriate context** based on the ICARUS aviation data model.
- Support in **increasing your data quality** through a number of **cleaning rules** that indicatively allow for removal of null values and detection/replacement of outlier values.
- Application of several **anonymization rules depending on the privacy risks** that each of your data field represents.
- Full control over which data columns you must **encrypt in an end-to-end manner** as they contain confidential/sensitive information for your organization.
- Easy definition of the appropriate **license and access policies** for your data to regulate who is authorized to access your data if you have them available in the ICARUS marketplace.
- Progress monitoring of the data upload in the On-Premise Worker.



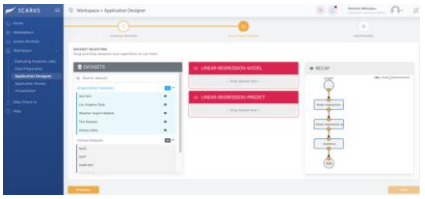
Data Search & Acquisition:



- Navigation to the ICARUS Marketplace and search for the datasets you need, with the help of various filters.
- Quick **request to purchase a dataset for a specific time period**, according to your preferences (selecting only the columns you need and applying filters!).
- Draft **contract preparation by the data provider**, setting the price and the terms of use you must comply with. Contracts prepared from scratch or **based on the data contract templates** their organization follows.
- **"Offline" payment** remaining entirely on you – **confirmation in the ICARUS** platform to grant you access to the dataset.
- **Full traceability, immutability and non-repudiation** of your contracts with the help of a distributed ledger technology.

Data Analytics & Visualization:

- **Efficient preparation of your data** and application of a number of data manipulation methods to create the features you need for an analysis.
- **Design of an analytics pipeline in an application**, containing the algorithms that you want to execute and their parameters along with your organization's (own and acquired) and virtual datasets.
- Execution of the **data preparation steps and the applications in your Secure Private Space** for your own analytics use.
- Intuitive **visualization of the analytics results**, allowing you to customize step-by-step all visualization parameters.



Key Differentiating Points

A One-Stop Shop
Discover and explore native-aviation, extra-aviation and derivative-aviation data assets

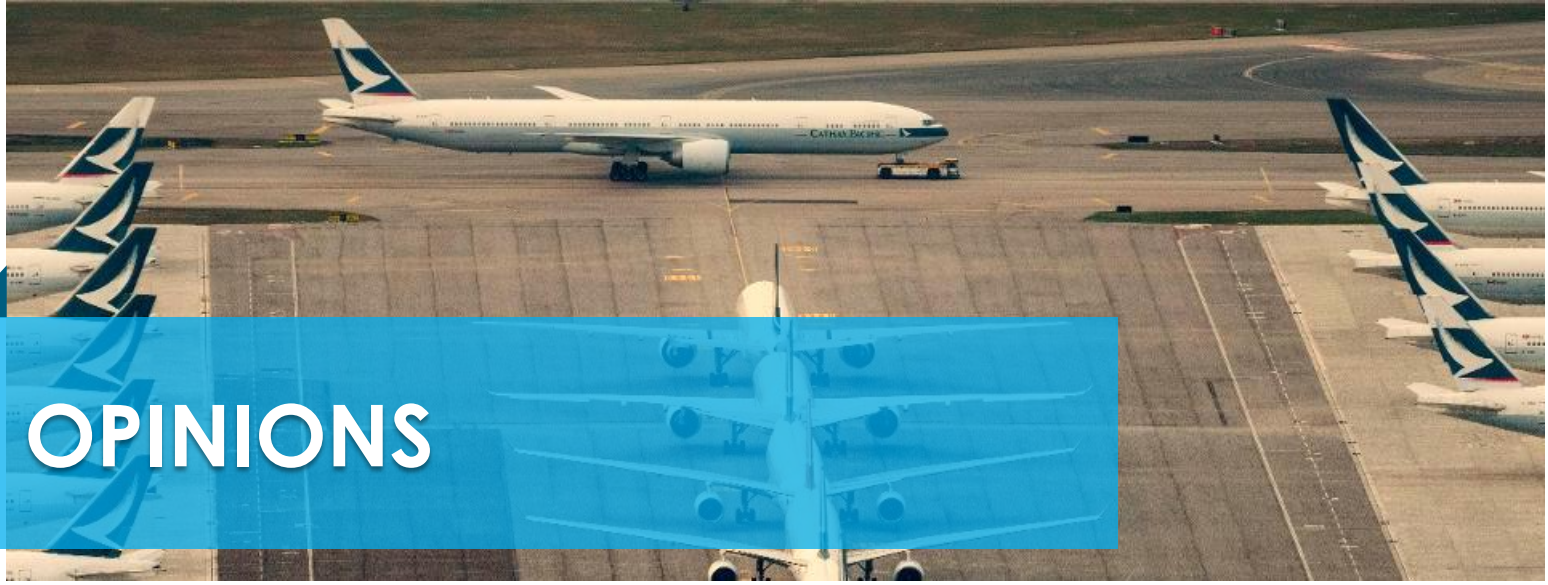
Trusted Data Sharing
Create, sign and validate smart data contracts in an immutable manner to acquire data assets

End-to-End Data Security
Encrypt and check-in your data through an on-premise environment

Advanced Access Control
Regulate access to your data assets through declarative authorization policies

Effortless Data Linking
Curate, map and link your data assets with external data

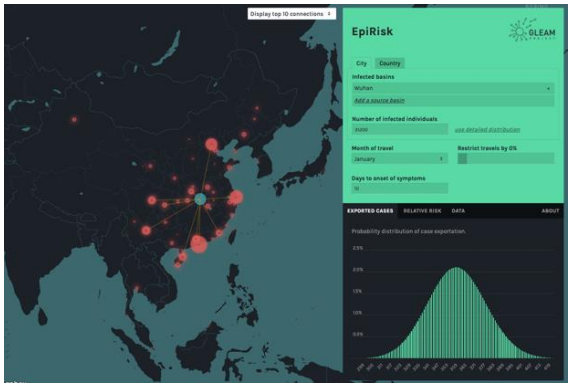
Secure & Private Analytics Spaces
Design and execute your analytics and your "applications" in private sandbox environments, spawn on demand



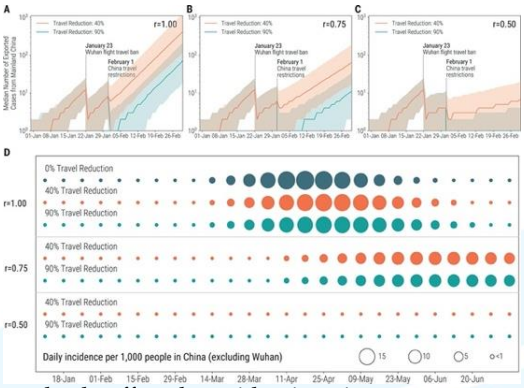
OPINIONS

EPIDEMIC ASSESSMENT OF COVID19

It is nowadays ascertained that the airline networks play a crucial role in the global spreading of emerging infectious diseases, especially airborne ones like the coronavirus responsible of the ongoing pandemic crisis. The Computational Epidemiology Lab at the Institute for Scientific Interchange (ISI), one of ICARUS's Demonstrators, has been working together with international research partners since the beginning of the Covid-19 outbreak, in order to study the diffusion patterns and assist health agencies.



Considering the international threat that an outbreak of a novel virus like that could pose to the world, our research team had been monitoring daily the reporting since the beginning of the year, and in mid-January we started to regularly publish reports assessing the spreading of the infections outside China. The reports did provide a modeling analysis of the risk of dissemination of SARS-CoV-2 infections, and, by using the cases detected outside the seeding country, also provided estimates of the potential outbreak size in Wuhan over time. We used a model relying on (historical) airline transportation data, based on the Origin-Destination traffic flows available in the OAG database, aggregated at the specific time and spatial scales used by the Global Epidemic And Mobility model. Using this approach, we were able to quickly assess the relative risk of case importation in other countries worldwide, and provide realistic estimates of the outbreak size in China. Reports were published until the end of January.



Once that oncoming data started to unveil some of the most relevant uncertainties about the disease characteristics, we worked using the full machinery of our computational infrastructure to study the effect of travel restrictions on the spread of the novel coronavirus. The global metapopulation model was calibrated on the basis of internationally reported cases and showed that, at the start of the travel ban from Wuhan on 23 January 2020, most Chinese cities had already received many infected travelers. The travel quarantine of Wuhan delayed the overall epidemic progression by only a few days in mainland China but had a more marked effect on the international scale, where case importations were reduced by nearly 80% until mid-February. Modeling results also indicate that sustained 90% travel restrictions alone (to and from mainland China) only modestly affect the epidemic trajectory.

The next big step forward in modelling pandemic outbreaks, and in the development of powerful tools for pandemic preparedness, would be including detailed demographic structures for describing simulated populations and accurate passengers' distributions. This could significantly improve the quality of the results, allowing for more realistic predictions and evaluations of containment and mitigation scenarios.

Prepared by ISI. Read the full article on https://www.icarus2020.aero/epidemic-assessment-of-covid19/

EVENTS

PAST EVENTS

ICARUS @IATA Aviation Data Symposium on June 25th-27th, 2019 in Athens

ICARUS @BDV-PPP Summit on June 26th-27th, 2019 in Riga

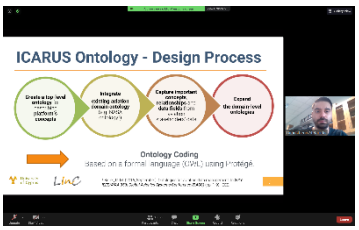
ICARUS @EASN Conference on September 3rd-5th, 2019 in Athens

ICARUS @PRO-VE Conference on September 23rd -25th, 2019 in Turin

ICARUS @Airport IT & Security Conference on September 25th -26th, 2019 in London

ICARUS @PACEdays on October 15th -16th, 2019 in Berlin

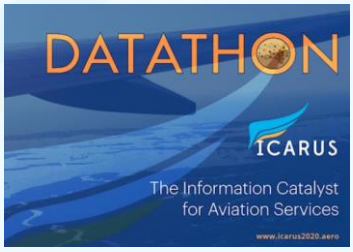
ICARUS @ 27Th ACRIS Meeting on February 25th – 27th, 2020 in London



ICARUS @WIMS Conference on June 30th – 3rd July, 2020 in Biarritz

UPCOMING EVENTS

VISIT WWW.ICARUS2020.AERO FOR MORE INFORMATION



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