EXPLORE FLIGHT

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DRF - Additional Concepts

Data and Reasoning Fabric (DRF)
NASA Aeronautics Research Mission Directorate (ARMD)
Transformative Aeronautics Concepts Program (TACP)
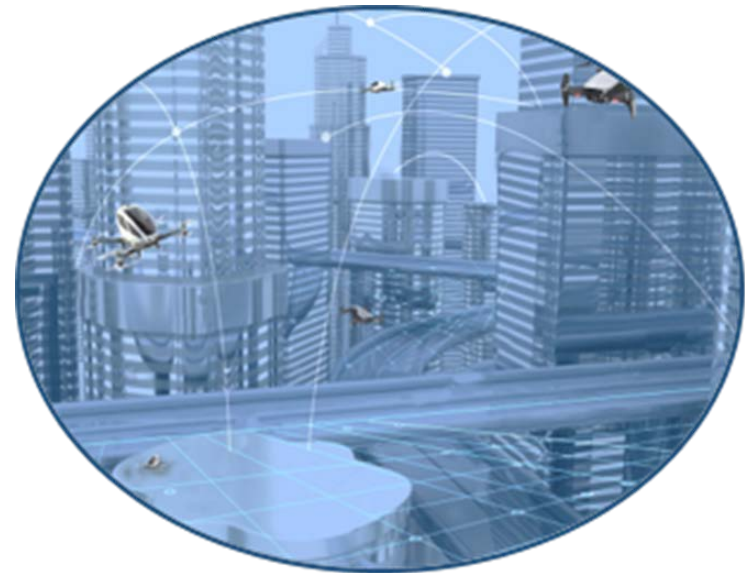Convergent Aeronautics Solutions (CAS) Project
Data and Reasoning Fabric Team

Data Services

Data Services connect users to critical data and metamodels for flight planning, such as weather, traffic, vertiport status, and so on.

In DRF these Data Services will operate autonomously by smart and/or Unmanned Aerial Vehicles (UAVs) and/or Reasoning Services.

Reasoning Services

Systems generate logical sequences and predictions using artificial intelligence and machine learning, referred to as "Reasoning Services".

These Reasoning Services provide critical decision-making support in a robust and timely fashion.

Fabric

A connected interwoven web of digital systems and services is referred to as the "Fabric".

This web-like ecosystem supports Advanced Air Mobility (AAM) by allowing all users to connect, find, and use data and reasoning services from many different sources.
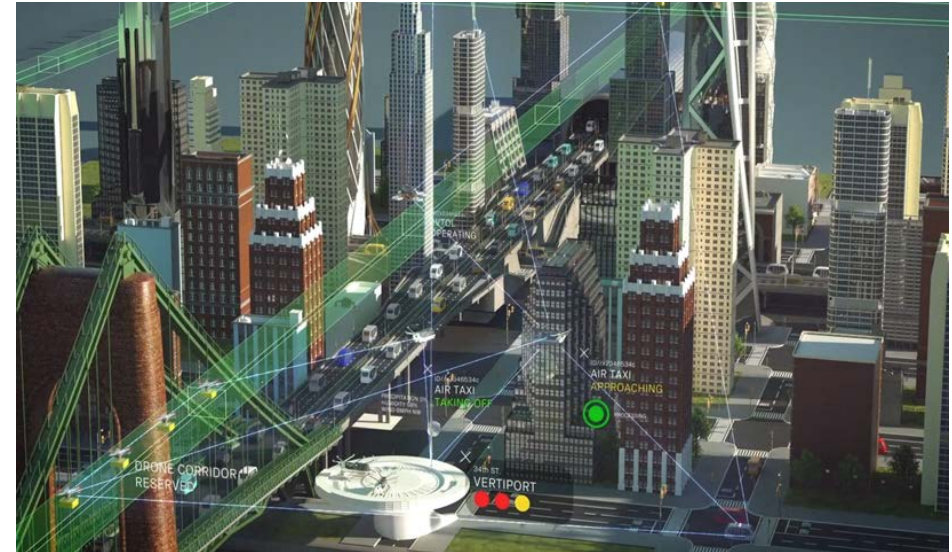
Advanced Air Mobility (AAM)

An air transportation system that moves people and cargo between places previously not served or underserved by aviation – local, regional, intraregional, urban – using revolutionary new aircraft.

Architecture

A set of rules, policies, standards and model that govern and define the type of data collected and how it is used, stored, managed, and integrated within an organization and its database systems.
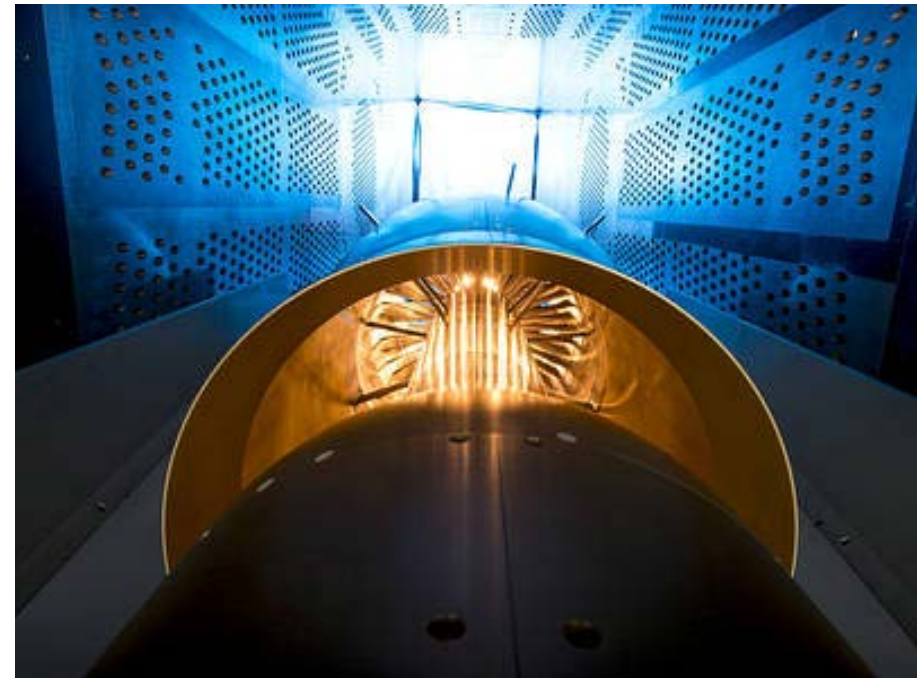
Edge Computing

Edge Computing is a new decentralized paradigm in which the data is handled, processed, and stored locally, or at the "edge" of the network, rather than being sent to a cloud or a data center.

This reduces the delays associated with transmitting large sets of data and allows for faster decision-making in time-sensitive situations.

Ecosystem

Spans foundational economic pillars of production, consumption, and their interactions with the goal of allocating scarce digital and physical resources.

Marketplace

The DRF ecosystem enables a digital "marketplace" where providers like weather services, mapping and surveying firms, air traffic management, and others can offer their data and reasoning services to aircraft operators via digital agreements.