

A public-private partnership to improve the supply chain by effectively implementing U-Space/UTM airspace technologies over the Israeli urban environment, and to reach a national drone delivery network with economic feasibility

Background

Many groups around the world have worked in the last decade to develop the next frontier of the supply chain by using drone technologies to improve our lives and deliver lifesaving goods. NASA was the first to develop Unmanned Aircraft System Traffic Management (UTM), later to be included in the FAA regulations for operating UAVs. The US market boomed with many groups competing to seize the new market opportunity and allocate a designated zone for their delivery operations. Simultaneously, the EU with the leadership of EASA and EUROCONTROL developed new ways to ensure safe large-scale operations of drones and key concepts through the SESAR Joint Undertaking Horizon 2020 programme. This program allowed EU backed programs such as CORUS-XUAM to develop six very large-scale demonstrations (VLD) and allowed several countries in the EU to safely test several drone applications in different environments. It also allowed collaboration efforts such as JARUS to create best practices and unify a set of technical and operation requirements for UAV. The third biggest market was built in China, where many UAV suppliers are currently testing VLD of drone delivery in several cities in China. Simultaneously, Rwanda, with several stakeholders, achieved long distance delivery of medical goods that were scaled to other African nations.

Israel's Unique Value Proposition:

Israel, in the wake of the COVID era, was able to harness all the knowledge gathered around the world and, for the first time in the UAV industry, complete large, complex demonstrations of several U-Space Service Providers (USSP), in one U-Space. This demonstration consisted of 16 UAV companies and providers delivering medical and commercial goods across the larger Tel Aviv area. No other group or nation has yet to test as many groups working together, delivering actual commercial and medical goods in a dense urban area like Tel Aviv.

The Israel National Drone Initiative (INDI), is a joint initiative of the Israel Innovation Authority, Ayalon Highways Co LTD, Civil Aviation Authority of Israel, Israel Ministry of Transportation, and Israel Center for the Fourth Industrial Revolution (C4IR) with the support of the World Economic Forum. In the past year, the INDI has been able to scale up the Israeli civil and commercial UAV industry from no operation at all to 6400 sorties. The initiative managed to work together, remove regulatory barriers and allow the delivery of blood, medical applications, commercial goods and food via air with drones in the most dense area of the country.

The INDI chose to use a 'cumulative capabilities' approach to ensure more advanced testing scenarios in every testing. In its short tenure, the organization has secured commitments for 8 demonstrations for 2 years, each of them being 2 weeks long and occurring every 3 months in an effort to allow regulators companies and other stakeholders to use the

knowledge from the previous demos and test more advanced scenarios and capabilities. This approach has allowed the INDI to create more robust technology and safer operation of UAV at scale. Inviting global companies and local leaders allows Israel to create a competitive market which is not dominated or designed only for the use of one company (as has happened done in other cases around the world), but rather create a shared environment with a focus on knowledge creation that benefits all and advances the entire global UAV industry.

Main achievements (to date)-

- Thousands of sorties in and near real urban areas, developing BVLOS capabilities and automatic control systems within a U-Space architecture.
- Blood and medical products deliveries between hospitals in Israel.
- Using delivery applications to allow live commercial use of drone delivery in urban area.
- Tactical deconfliction scenario with a real manned aircraft entering the airspace and testing the USSP response.
- Global operations – allowing UAV companies to join the U-Space simultaneously from several locations around the world and test scenarios together.
- Testing and adopting Drone Identification Devices (RID) to monitor the airspace and share with airspace users.
- Testing of indoor search and rescue drones.
- Shielded and monitored operations protocol – zero coordination and transparency to manned ATM.



Photo credit: Aviv Bar Zohar

The INDI group is growing! Join the drone delivery revolution and our demonstrations. We seek to establish international alliances and global partnerships to advance the industry as a whole and allow drones to deliver any good anywhere around the world.