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Global Harmonization

Critical elements of AAM requiring global interoperability and harmonization

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Global Harmonization

What we will be talking about?

- **Ciconia intro**
- **Are global standardization and harmonization needed?**
- **Global standardization and harmonization**
- **The V2V link example**
- **Global harmonization – who will lead?**

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Global Harmonization

Feb. 26th 2023, C&CAS demo, INDI

(Israel National Drone Initiative)

Dror Bed David

Ciconia's Vision:

To open low altitude skies for

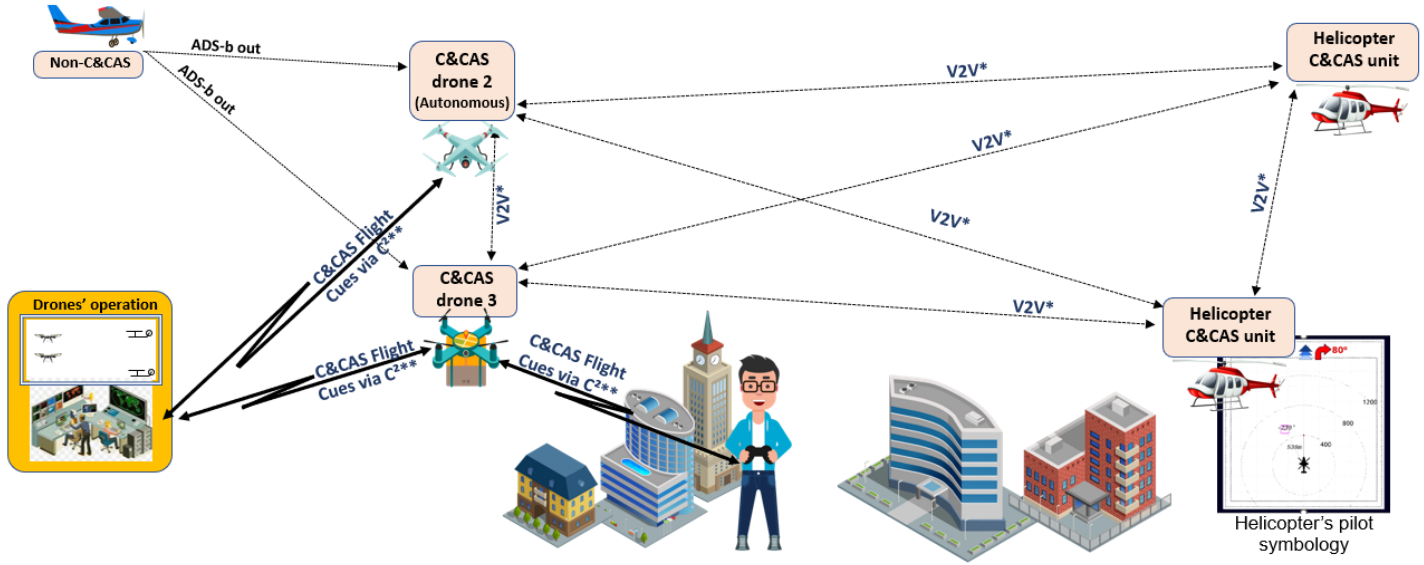
safe and dense aerial operations

of drones and crewed aircrafts

Ciconia's **C&CAS**

(Coordination & Collision Avoidance System):

For drones and crewed aircraft



Global Harmonization

Will the AAM be:

A **mass transit system** taking load off of the roads

or

An isosteric, sort of a **gimmick**, system ?

Depends on the end user price!

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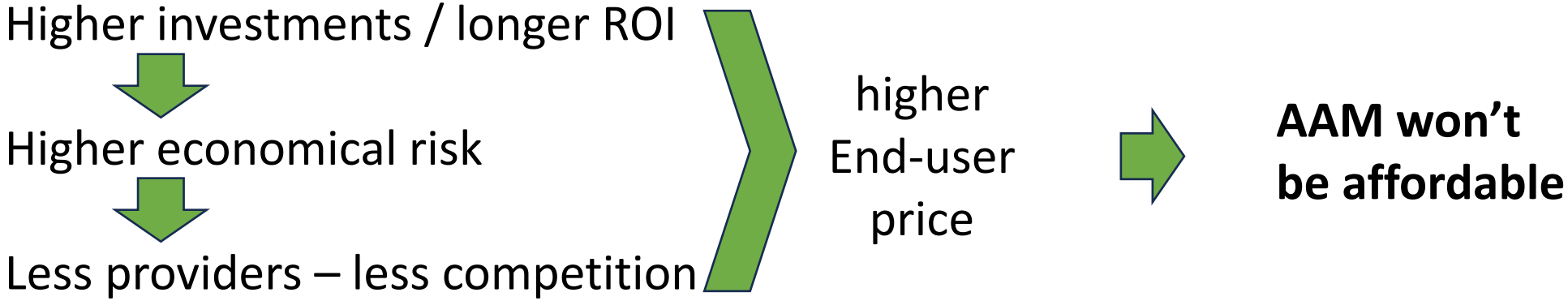
Global Harmonization - what for ?

Adhering to standards and regulations is a costly process.

Non globalized AAM ⇒ higher expenses



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Why Global Harmonization ?

Ciconia

The less adaptations and certification needed for an AAM vehicle / service to immigrate from state A to B – the more affordable the service will be !

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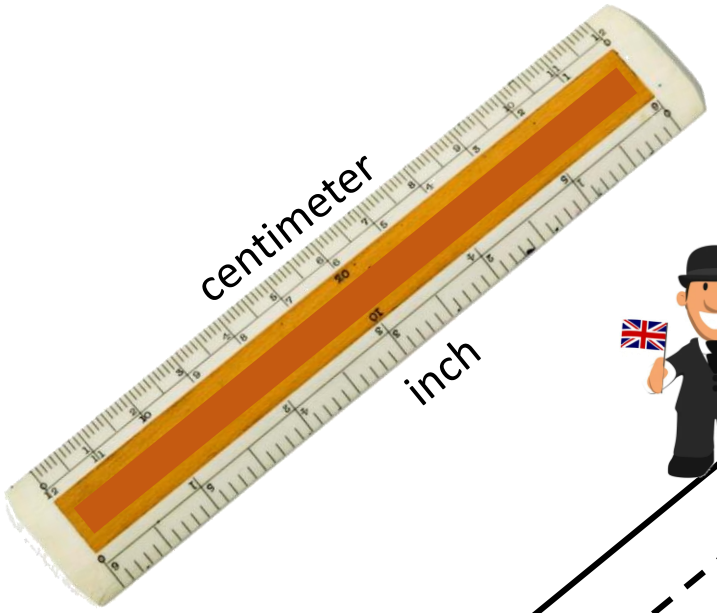
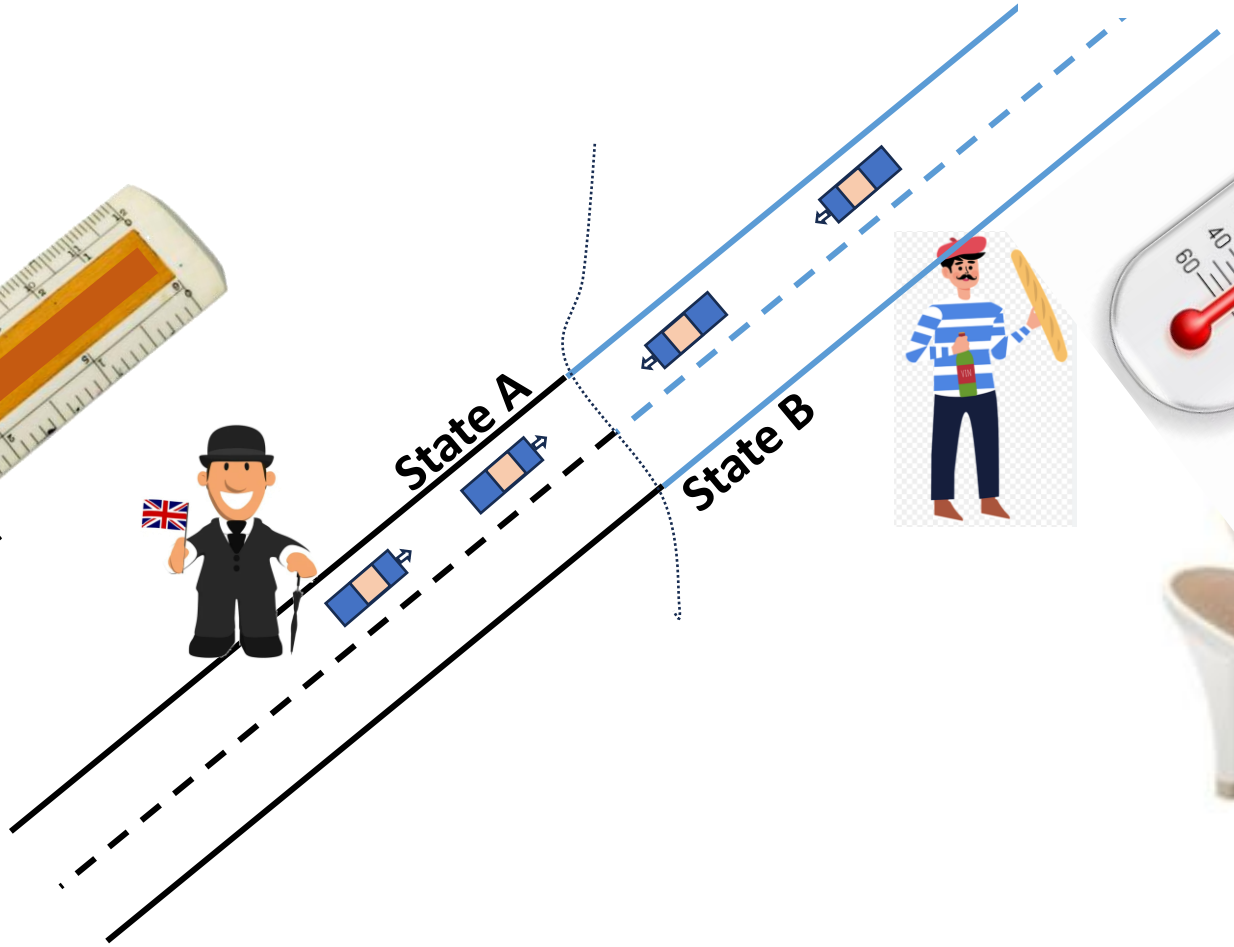
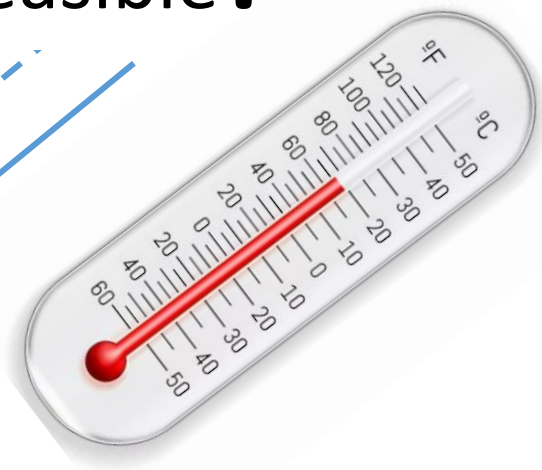
Is Global Harmonization feasible?







Shoe size

USA	UK	EUR	JPN(cm)	CHN(mm)
5	3	35.5	21.5	215
5.5	3.5	36	22	220
6	4	37	22.5	225
6.5	4.5	37.5	23	230
7	5	38	23.5	235
7.5	5.5	38.5	24	240

The AAM / UTM, industry is young,
global harmonization is still an option!

Global Harmonization

Elements that require global harmonization:

- Technical standards
- ATM (Air Traffic Management)
- Regulations and certification
- Data Sharing, security & privacy: vehicles, operators, infrastructure, regulators
- Infrastructure: vertiports, landing pads, charging stations
- Vehicle To Vehicle (V2V), low latency link
- Decentralized, low latency DAA

The technology develops rapidly, will the standardization and regulation keep the pace?

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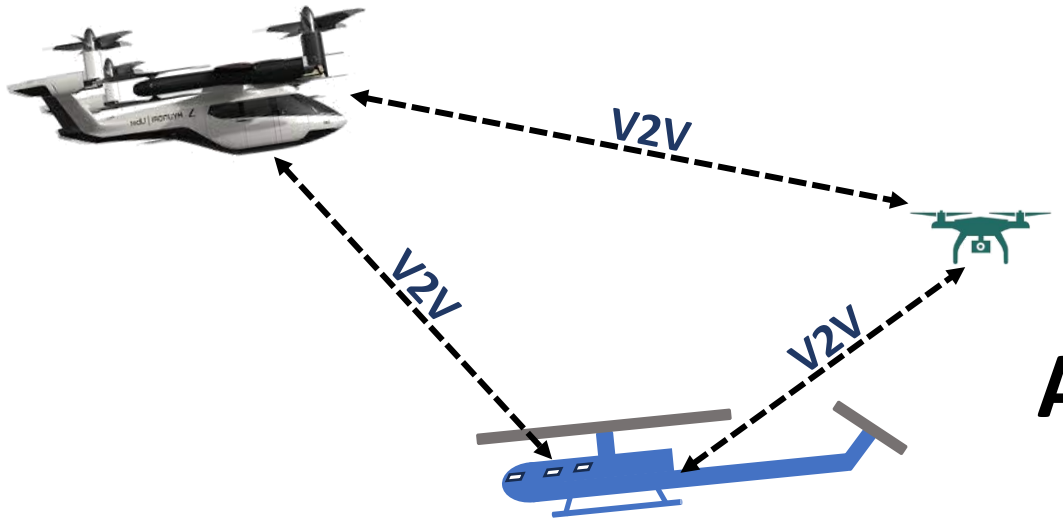
The V2V (Vehicle To Vehicle) link example

For the **AAM to be a mass transit** system and for the **UTM to flourish** - **many aircraft must be allowed into the airspace simultaneously**.

A shared by all DAA (Detect And Avoid) system that is based on a **low latency V2V link** allows simultaneous dense aerial ops.



A low latency V2V link is needed!

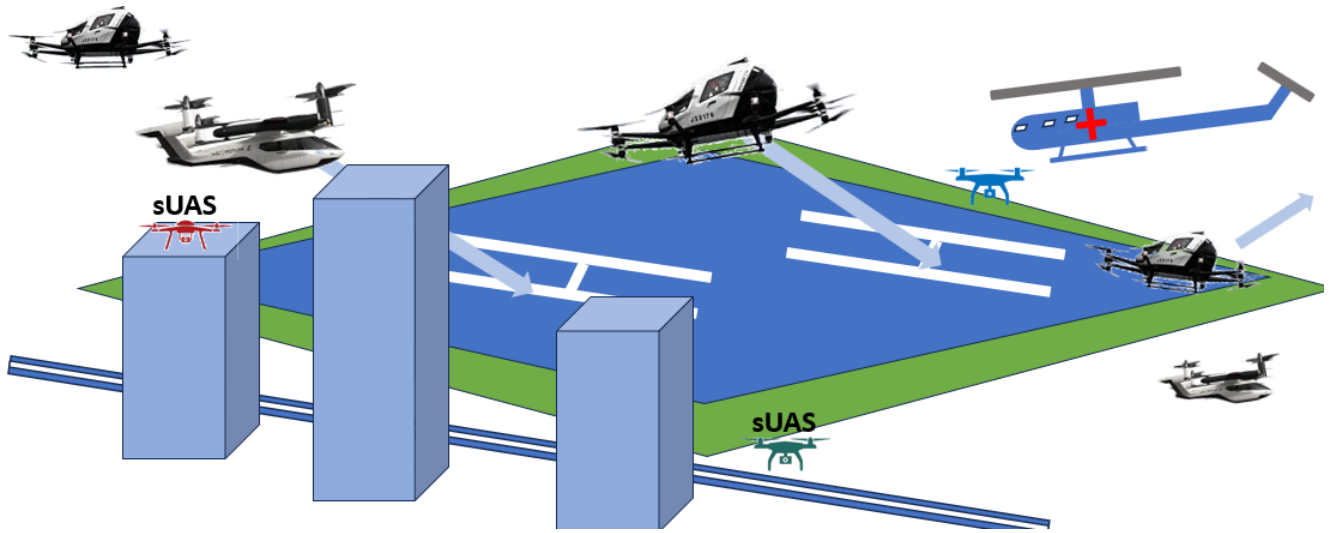
Global Harmonization

The V2V (Vehicle To Vehicle) link example

To set a global, low latency, V2V link,
CAAs need to agree on:

- the priorities of the link
- the link characteristics
- the link protocol
- frequency allocation…

And more



As of today, a low latency V2V link is far away –
a global V2V link is beyond the horizon

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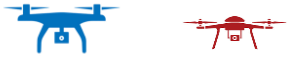
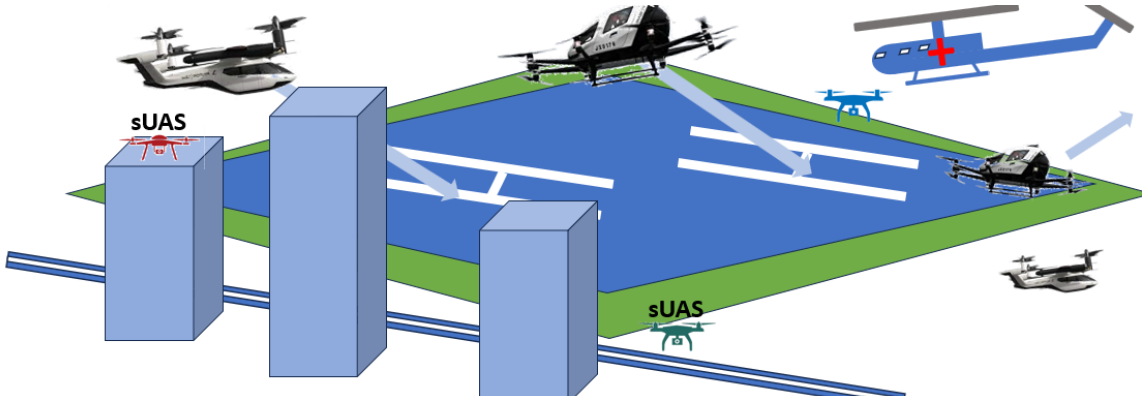
The V2V (Vehicle To Vehicle) link example



sUAS and AAM

- Mass transit AAM ➡ many vertiports
- Around every vertiport, a no sUAS fly zone
- Conservative calculation: **20% of an urban area will be a ‘no fly zone ’ for sUAS**
- A V2V based DAA system that is shared by all, sUAS and AAM, will allow to reduce the ‘no fly zone’ size

A low latency, V2V link, is needed for AAM and UTM



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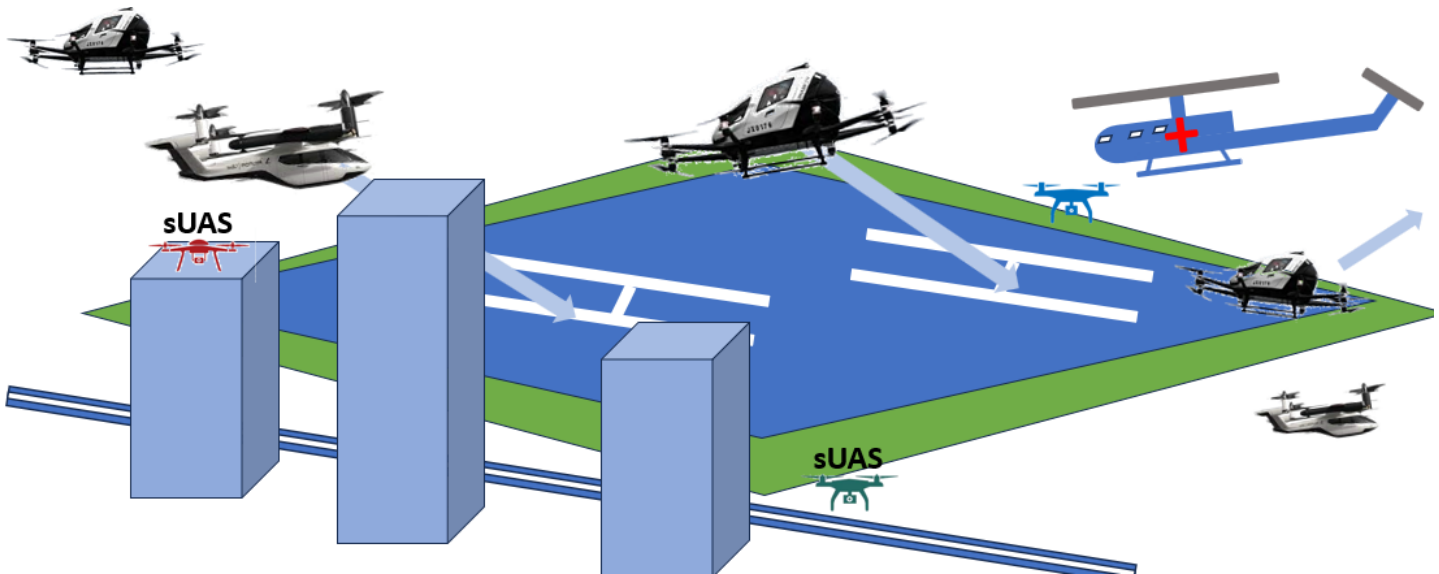
The V2V (Vehicle To Vehicle) link example

Who will lobby for a global V2V link?

- Cellular industry? If it is cellular based internet and / or 5G
- Satcom industry? If it is a satellite link
- AAM integrators: Why would one take the risk?



Global Harmonization

- The AAM / UTM industry is good for society
  - Good jobs
  - Off loads the roads
  - Exciting / innovative
- UTM aircraft are safe and reliable, AAM will be soon
- UTM / U-space are in place
- Crewed and uncrewed aircrafts can safely operate together
- Regulation and standardization set the pace
- We looked at the V2V example
  - It is a key element for industry
  - However – a V2V link for the ‘low & slow’ is far, a global V2V is very far…

Global Harmonization

Who will take the lead to promote a globalized low latency V2V?

The ICAO?

Flight test 2023