

URBAN AIR MOBILITY

29.1.2019 Tero Vuorenmaa

Robots Expert Finland Oy



CONSULTANCY FOCUSED ON UNMANNED AVIATION

HELP COMPANIES ADOPT NEW DRONE
TECHNOLOGY IN THEIR BUSINESS

PROMOTE SCALABLE DRONE BUSINESS



Number of passenger drones in operation worldwide (forecast)

Passenger drones in UAM operations
['000#]

- Intercity flights
- Air taxis
- Airport shuttles



Note Estimated that ~100 cities will have UAM operation in 2050

Urban Air Mobility in big cities

Mostly discussions around air taxis



Air taxis in Finland – will they take off?

OPEX + CAPEX versus BENEFITS:

- Air Taxi cost
- Air Taxi maintenance (eg. batteries €€€)
- Required infra to build and maintain

Costs are still too high versus gained benefits

Several technological increments are required before costs are low enough for air taxis to have business potential in Finland.

But they will come...

What else is Urban Air Mobility?

Examples:

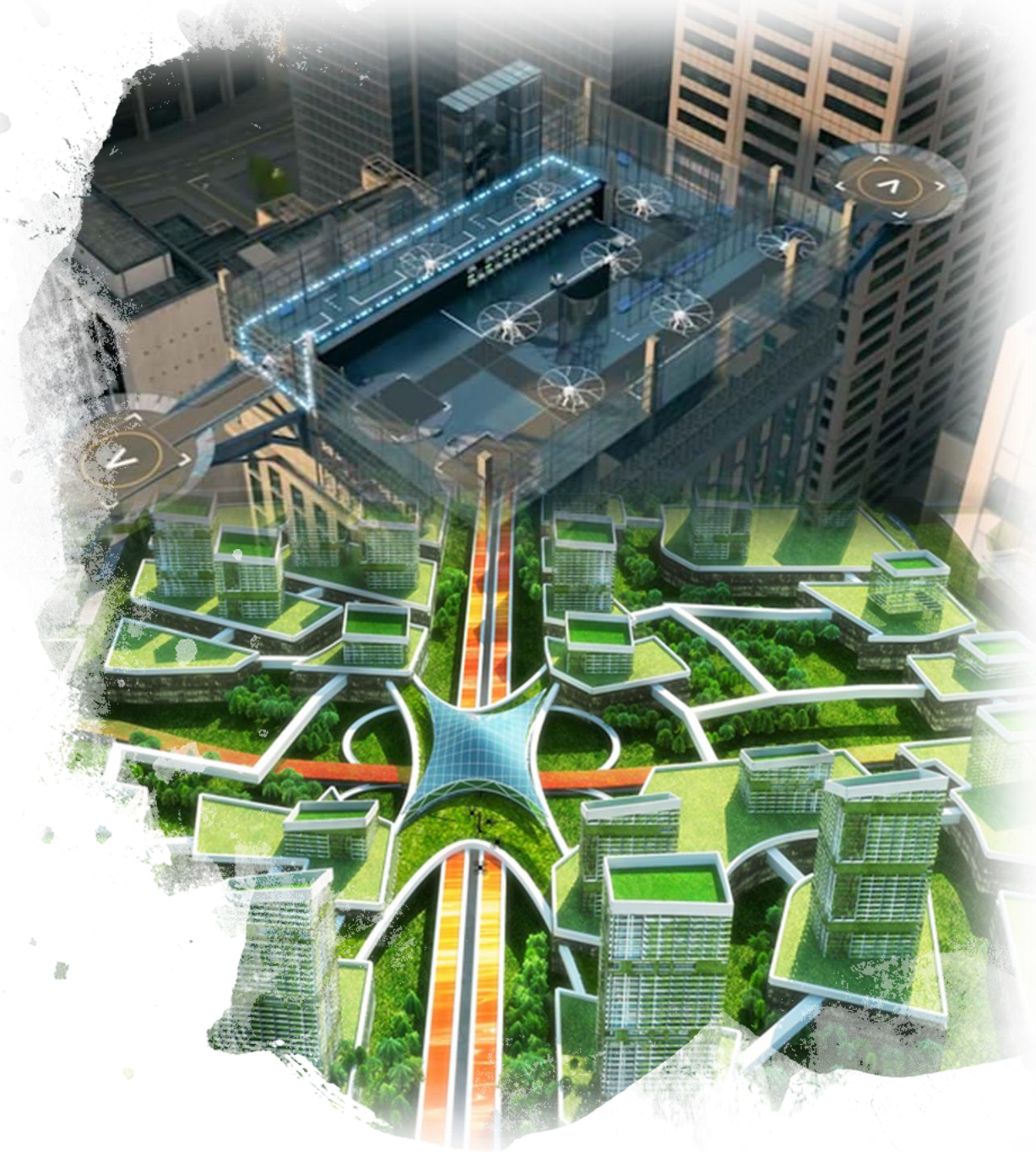
- **Autonomous drone parcel delivery**
- Drone emergency response
- Autonomous drone surveillance

Urban Air Mobility is capability to enable scalable Aerial (Drone) mobility in urban environments by integrating it as a part of Smart Mobility and Smart Cities



Example: Drone-enabled cities

- Vertiports and landing pads
- Charging network
- Flight corridors to minimize risks and noise
- Data connectivity in the Air (Current mobile network is optimized for ground level)
- City planning and architecture to allow drone traffic where it is needed
- Multimodality with transportation and logistics



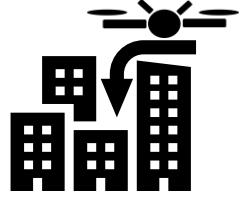
Urban Air Mobility is much more than flying taxis or drone logistics



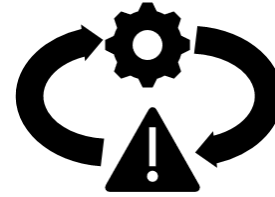
City planning and architecture



Infrastructure for drones



Drone traffic management



Maintenance and airworthiness



Safety Standards



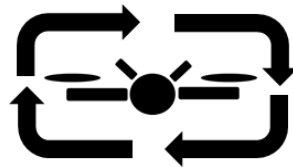
Cyber Security



Micro Weather services in cities



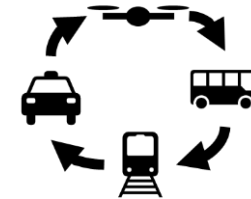
Telecommunication and datalink in cities



Fleet management



Legislation and Rules in EU, National and cities



Mobile as a Service



And Much more

- ✓ Canton of **Geneva**, 30th May
- ✓ City-State of **Hamburg**, 7th June
- ✓ City of **Ingolstadt** and its region (State of Bavaria), 19th June
- ✓ City of **Ghent**, 21st June
- ✓ City of **Plovdiv**, 27th June
- ✓ City of **Brussels**, 16th July
- ✓ **Euregio Region** (Enschede & Münster), 6th September
- ✓ City of **Antwerp**, 10th September
- ✓ **Toulouse Metropole**, 19th September
- ✓ **Region Nouvelle Aquitaine (incl, Bordeaux Metropole)**, 20th September
- ✓ **MAHHL Cities** (Maastricht-Aachen-Hasselt-Heerlen-Liege), 24th September
- ✓ ...a **few other cities/regions** to join in soon!

Launched in EIP-SCC General Assembly
in Sofia on 27th June 2018

... and growing

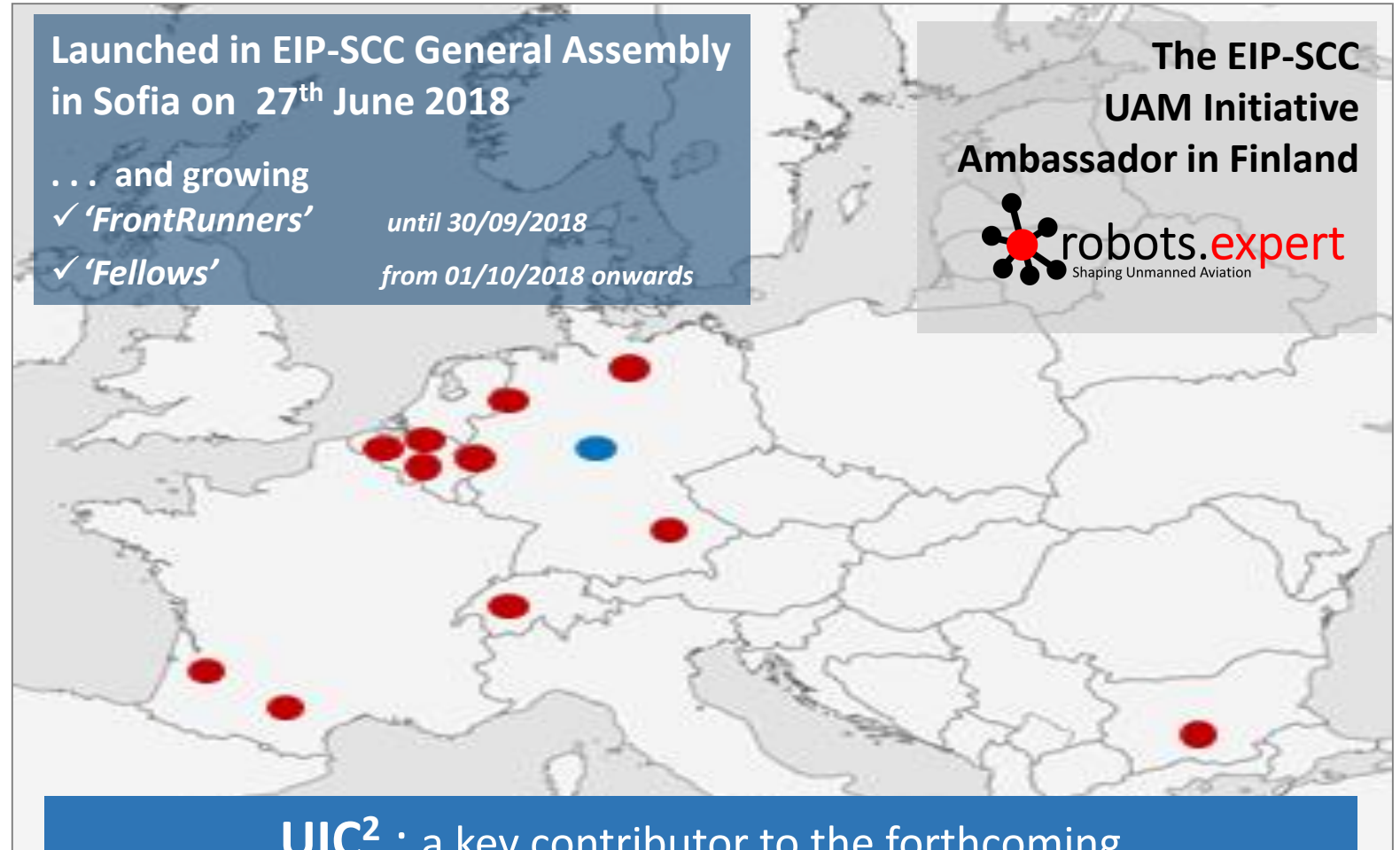
✓ 'FrontRunners'

until 30/09/2018

✓ 'Fellows'

from 01/10/2018 onwards

The EIP-SCC
UAM Initiative
Ambassador in Finland



UIC² : a key contributor to the forthcoming
European Network of U-Space Demonstrators

(to be launched in Oct 2018 by the European Commission & be managed by Eurocontrol)

Drone logistics in Finland starts 2019

Googlen tytäryhtiö aloittaa Helsingissä tavaroiden kuljetukset lennokeilla – ”Jos kopterimme lentävät Suomessa, ne lentävät missä tahansa”

Amerikkalainen Wing-yhtiö kertoo jo testanneensa lennokkejaan Tampereella.



Aviapoliksessa käynnistyy ainutlaatuinen kestävä liikummisen kehittämishanke



Aviapolis Liikennelabrassa Vantaan kaupunki lähtee yli kolmenkymmenen kumppanin kanssa kehittämään ennennäkemättömiä tulevaisuuden liikenteen palveluita. Hankkeessa etsitään hiljaisia, turvallisia, vähänää... öisiä ja kustannustehokkaita liikummisen ja kaup... laajennettavissa myös... uja, jotka ovat

- Vantaan uusi
 - › Asuminen ja ym
 - › Hallinto ja talou
 - › Terveys ja sosia
 - › Vapaa-aika
 - › Varhaiskasvatus
- Ajankohtaiset kaava
- Osallistu ja vaikuta
- Tarinoita Vantaalta
- Tilaa alueellinen uut
- Vantaa somessa
- Yhteiset palv
- seudulla
 - › Suomi | Svenska
 - › Selkokieli | Lättl
 - › Viittomakieli | T

“Global drone logistics market is predicted to grow 21% yearly from \$11B 2022 to \$29B 2027”

Source: Research and Markets, 2018



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