



Drones taking off

Uddannelses- og Forskningsudvalget 20.05.2016

<https://youtu.be/6gOe0k1pbK8>

<https://www.youtube.com/watch?v=IHcCyX2XEUY>

<http://www.cnet.com/news/special-delivery-zipline-ups-partner-to-deliver-medical-supplies-by-drone-in-rwanda/>

Vision

- // HCA Airport wants to be one of the leading European test centers of Unmanned Aircraft Systems. We have established UAS TEST CENTER Denmark
- // UAS Test Center Denmark is dedicated to safety, service, flexibility and professional competencies.



Drones – a new growth industry?

An analysis of the Danish growth potential within unmanned aircraft systems

by Oxford Research



22 April 2015

What is the job potential?

The UAS industry can create between 12.000 and 15.000 jobs in Denmark before 2050.

This is 8-10% of the expected employment in Europe related to unmanned aircrafts (private production and development jobs)

The estimated job creation effect in the UAS industry of the 'first mover' scenario

	2015	2035	2050
No. of jobs in EU	N/A	85.500	150.000
No. of jobs in Denmark	100	6.800 – 8.500	12.000 – 15.000

Need for testcenters?

- European RPAS Road Map:

*“As RPAS activities are already being undertaken in several European states, the R&D Roadmap has identified **the need to establish a set of demonstration activities at flight test centres or centres of excellence with access to the required relevant airspace, bringing together RPAS operators, manufacturers, ANS service providers and regulatory authorities, with the aim of collecting best practices in parallel to developing operational, technical documentation and proposal for standards.**”*

Need for testcenters?

- Oxford Research:

”

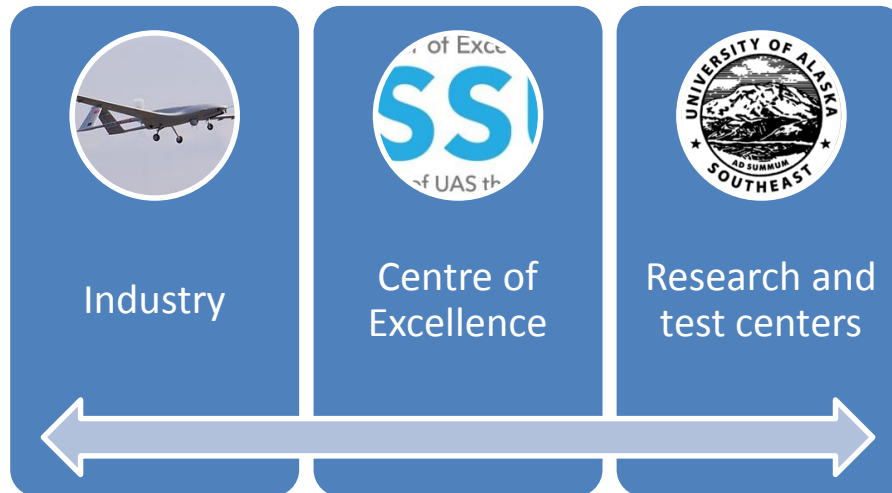
- *Det kan positionere Danmark og **opbygge en international styrkeposition, ligesom testfaciliteterne på Risø gjorde for den danske vindmølleindustri***
- *I videns- og teknologiintensive sektorer er det vigtigt, at producenter, operatører, vidensinstitutioner og offentlige aktører har mulighed for at afprøve og teste deres teknologier*
- *Et veludbygget test- og udviklingscenter kan bidrage til brobygning mellem forskningen og den kommercielle anvendelse af teknologierne og dermed understøtte processen fra test og demonstration til markedsintroduktion*

”

Need for testcenters?

- USA:

I 2015 udnævnte FAA ét *Center of Excellence for Unmanned Aircraft Systems* med fokus på forskning, uddannelse og træning i kritiske aspekter af sikker og succesfuld integration med en bevilling fra kongressen på 34 mio. kr. i en 5-årig kontrakt for dette center.



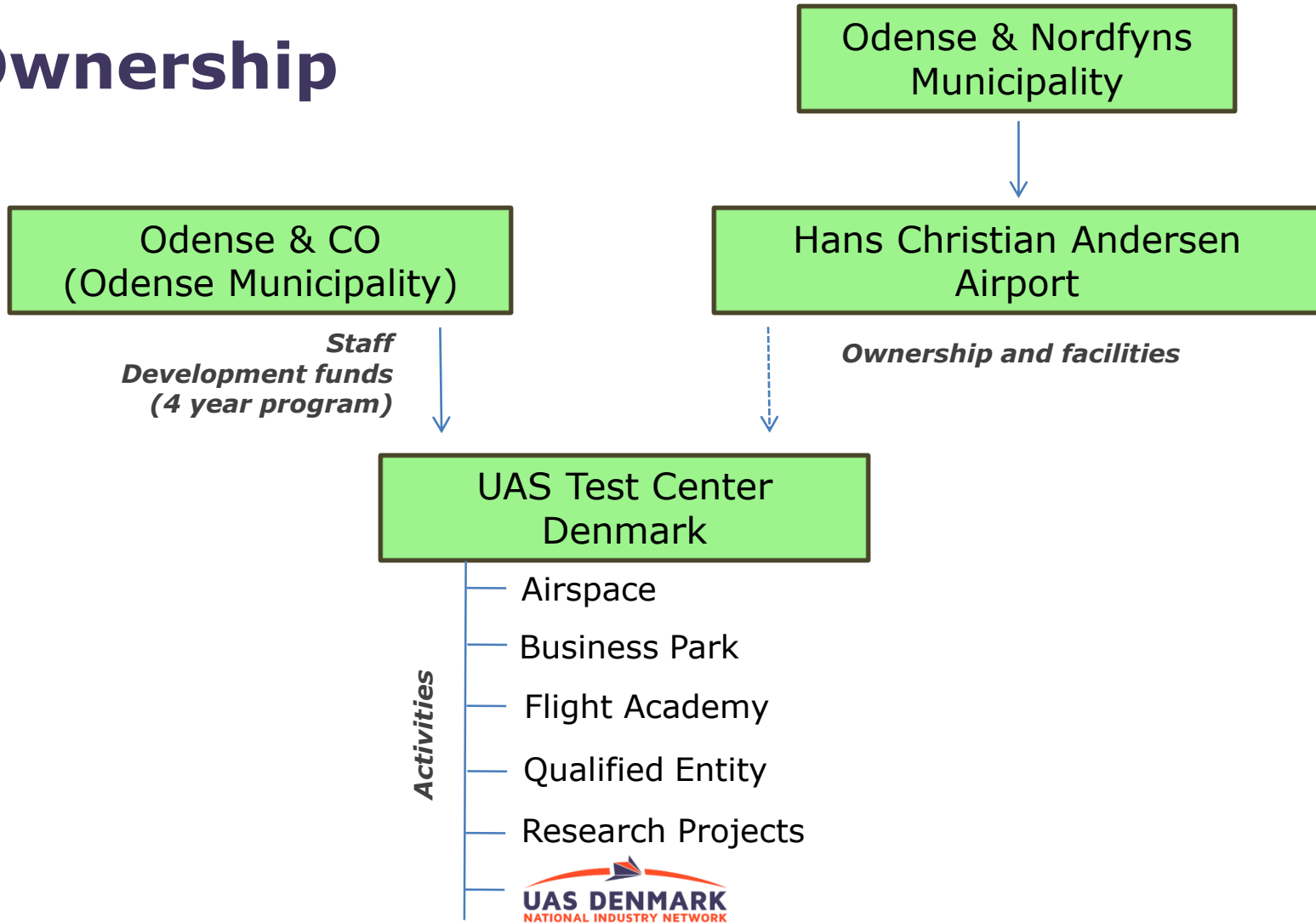
Hans Christian Andersen Airport

- // Area: 170 ha areal = 420 Acre
- // Business park
- // Owned by the County of Odense and the County of North Funen
- // Professional board of directors.

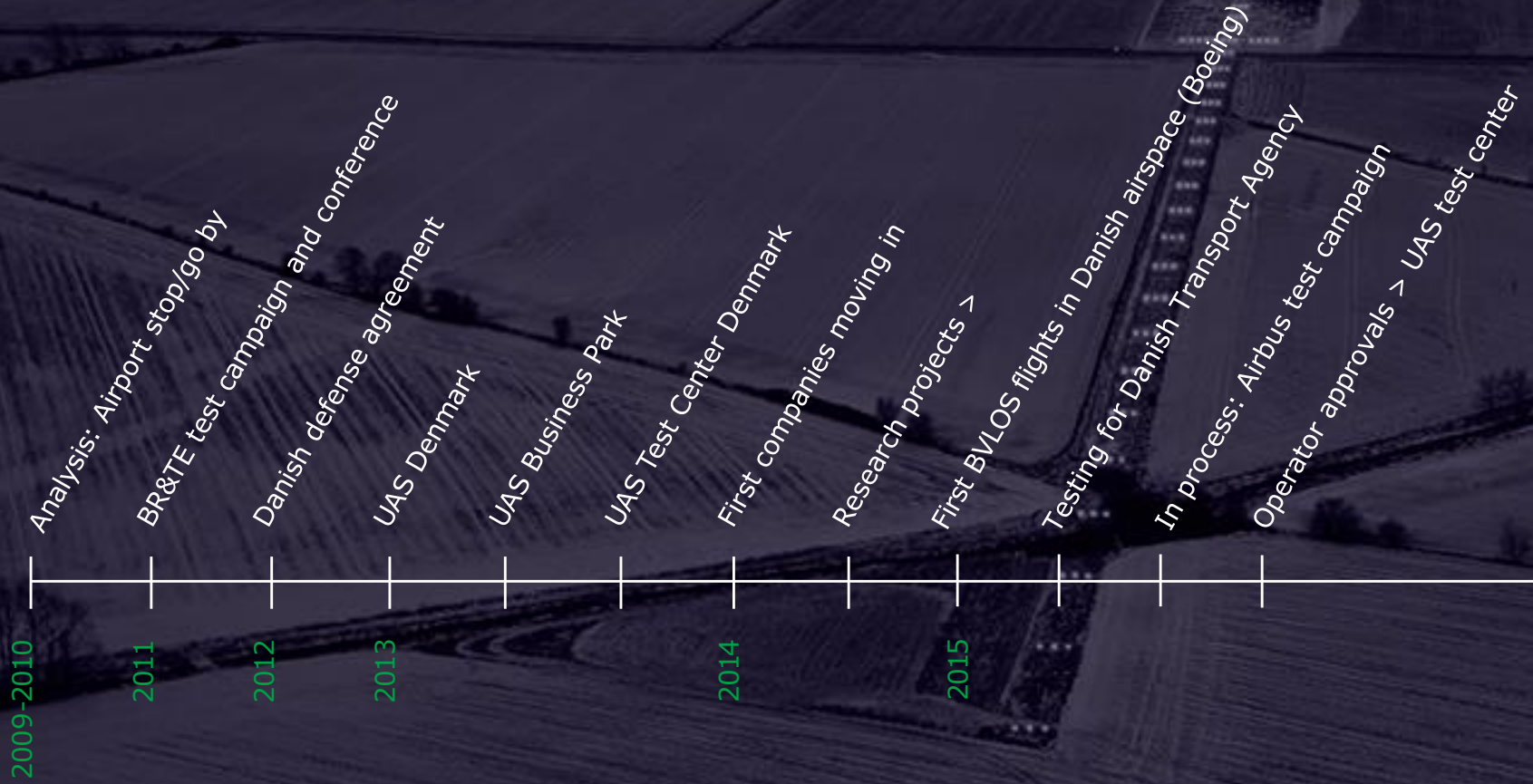
Activities

- // Charter and private flying
- // Events
- // UAS activities
- // Conference activities.

Ownership



UAS background





HCA Airport: In the middle of Denmark – close to the rest of Europe



RWY 06/24 2000X45 meter asphalt - Airspace
CAT:G - ATS: AFIS
App Systems: ILS RWY 24 - NDB/DME - VDF
Odense Terminal Information Zone (TIZ): 11
x 6.5 NM - Airspace G: 3.500 feet.

UAS TEST CENTER DENMARK (UAS TCD): TEST AIRSPACE

UAS airspace for testing, training and demonstrations

- // Short and effective in-house approval process
- // Small UAS (up to 25 kg) can operate in segregated airspace of app. 2,5 x 6 km x 2.500 ft.
- // Heavier UAS or larger airspace can be approved by Danish CAA
- // BVLOS-corridor (planned)
- // International cooperation (US test sites).







REFERENCE: FORGEIGN FIRMS SEE POTENTIAL IN THE TESTING AND R&D OPPORTUNITIES IN DENMARK

THE WORLD'S LARGEST AIRPLANE PRODUCER IS TESTING UAV'S IN DENMARK

“ Both academic and industry are at an **incredibly high level** in Denmark. We have found much more **potential** here than anticipated.

We will continue to build on our more than four years of **collaboration with HCA Airport** to bring opportunities in the fast-growing unmanned systems market to Danish industry

DEBBIE RUB
VP and GM, Boeing Global Strike

<https://youtu.be/Khjj44s7TP8>



REFERENCE:

AeroVironment Inc. – facility testing using multiple platforms

Following announcement of UAS Denmark membership early 2015, **AeroVironment Inc. has successfully tested the facilities of UAS Test Center** Denmark using multiple UAS platforms.

"The entire process of flight completion went absolutely seamless in terms of planning, approvals, management and onsite support. UAS Denmark professionally supported all our efforts and made the facilities easy accessible for an international company as AeroVironment Inc. The facilities of UAS Test Center Denmark is truly unique for conducting UAS activities in Europe."

AeroVironment Inc.





POTENTIAL PARTNERS in Denmark

85 members




Research Institutions



Independent Danish research & technology organisations



Hardware & Software Developers



Consultancies & Operators



(Public) End-Users

NORDIC UAS EVENT 2016



This year we will once again arrange **Nordic UAS Event** – a 3-days event from 1 to 3 June 2016. The aim is to create the best window for relations building for the Nordic UAS stakeholders with the rest of the world.

The event will be held in **Odense Congress Center**, with the possibility for having up to 6000 participants in a top modern location – located only 15 kilometers away from the national test center for UAV's (UAS Test Center Denmark), where the first UAV demo day (June 1) will be held. Day 2 and 3 will be Conference and Expo in the Congress Center.

The aim is to attract **50 exhibitors from** all over the world.

The Nordic UAS Event will be held in close partnership with **RoboBusiness Europe**, a big robotic event, which also will take place in Odense Congress Center from 1 to 3 June 2016.

<http://nordicuasevent.com/>

Vi er kommet godt fra start – men konkurrencen kommer!

	Odense	Atlas (Spanien)	AETOS (Frankrig)	Bayern (Tyskland)
Type	Civil lufthavn /klynge	Dronecenter	Flere civile lufthavne/klynge	Civil lufthavn /klynge
Organiseret	Odense Kommune	Regionalt initiativ	Regionalt initiativ	Lokal/Regionalt initiativ
Luftrum	Uafklaret	1.000Km ²	Flere områder – militært	Kan bruge militært luftrum - stort
Business park	Pt alt udlejet, men kan etableres	Kan udbygges –men fokus er test	Ja, del af større teknologiområde "Technowest"	
Klynge	UAS Denmark	Er selv del af andalusisk aerospace klynge "FADA"	Ja – Stor fransk industri og mindre start ups.	Forsøger opbygning omkring eksisterende aerospace industri, i Augsburg området (20.000 beskæftiget, 4 mia. i omsætning)
Hangarfaciliteter	Ja (Pt udlejet)	Ja	Ja	Ja
Universitets-tilknytning	SDU – og flere i UAS Denmark	Igennem FADA – Uni Sevilla	Uni-Bordeaux	Nej
Pilotuddannelse	Ja	Nej	Nej	Nej
Landingsbaner	2000m	1200m	Kan bruge flere lufthavne	1000m
Infrastruktur	Gode transport forbindelser til/fra Odense	Afsides – 2 timer fra motorvej; 4 timer fra lufthavn	Gode transportforbindelser til/fra Bordeaux og Toulouse	Godt forbundet.

Vi er kommet godt fra start – hvad kan sikre success og danske arbejdspladser?

1. Luftrum og adgang til flyvning – nem og fleksibel adgang, BVLOS
2. Fra regionalt til nationalt (med-) ansvar
3. Forskningsinfrastruktur – nu på road map – er der midler? (laboratorier, radardækning, forskningsdroner)
4. Samle aktiviteter i testcentret, give ansvar og opgaver
5. + National strategi og erhvervsvenlig dronelov!

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**The future
is in the air!**

