

# Drone deliveries in Iceland

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## Overview

Background of Aha and our delivery network in Iceland

What does the future of delivery look like?

Our journey into drone deliveries, current status and future



## Background - why are we here?

We build marketplaces for hot food, groceries, retail goods with instant deliveries.

First marketplace - [aha.is](http://aha.is) - Customers in 2/3 of households in Reykjavik.

Founded in 2011 - operating 7 days a week - 60+ employees.

# Anything, anytime. Delivered to your door.

Food, groceries and 1,000's of products from the stores you already shop at available for delivery or pickup

Shop now



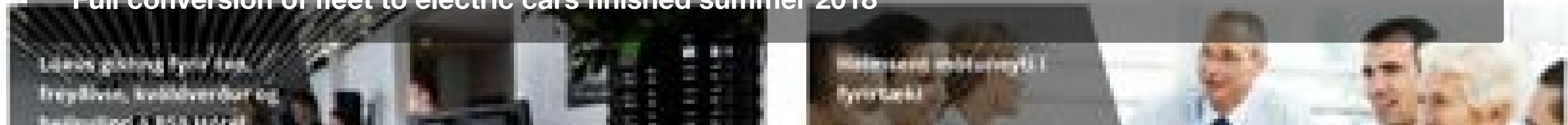
## 2014: Instant deliveries launched

### Aha Featured

After 3 good operating years started our own delivery network

ICE cars initially with 1 electric

Full conversion of fleet to electric cars finished summer 2018



# **Delivering in Iceland is tough and chaotic**

**Financial freefall from 2014-2017 after starting delivery service**

**Transition from software company into software company with complex operations.**

**While learning the delivery business we started questioning the model to find better solutions.**

# Current state of last-mile deliveries

Uneconomical use of vehicles with small payloads and high infrastructure costs.

Expensive - one driver per car - a very complicated machine

High demand fluctuation - hard to scale economically.



# High hopes for the future

Customers want eco-friendly, low cost service with instant gratification

Authorities looking for simpler infrastructure and traffic management.

Everyone wants speed, sustainability and safety.



# What if local deliveries cost \$2 & arrived in 60 minutes or less?

Smaller sellers could compete with online giants in the ecommerce market.

More efficient local stock management / reduced & simpler returns.

No house arrest from 9-22 pm waiting for package to arrive.





# Can we reduce cars / traffic / pollution 10x?

We estimate that 1 Aha car takes 3 family cars off the road - can 1 drone replace 3 aha cars?

Over time less need for new ground infrastructure, less noisy environment

No friction less pollution, simpler maintenance and much better payload to weight ratio.



# Is drone delivery the only option?

Robots, autonomous cars, tunnels.

The end result is likely to be mixed and involve humans - we aim for 50% deliveries made by drone.

Last-mile like other logistics will use mixed modes of transport - robot-car-drone-robot?

Boston Dynamics

# Is Iceland really the place to start?

Weather is the main challenge but also a key opportunity.

Unattractive market - we had to draw partners in with something different - license and weather.

Iceland would either be the first or the last to open for operations due to market size being too small.

An aerial view of a modern city skyline, likely Dubai, featuring several tall skyscrapers. A drone is visible in the air, flying between the buildings. The sky is clear and blue.

# Can we find the right partners?

Key decision taken to focus on operations and licensing

Still we understand and are patient towards technology.

Pitched as many drone / robotics companies for partnership as we could in 2014 - 2016



## **Did Aha really need such a futuristic solution?**

**Fast growing company in a low unemployment, high salary and high cost environment.**

**Very limited financial resources but scaling car fleet would also be a substantial investment.**

**Necessity is the mother of invention... so the answer was yes ...**

A map of Iceland with a flight route highlighted in red. The route starts at a red dot labeled '1' near Reykjavik and ends at a red dot labeled '2' in the eastern part of the island. The map shows the coastline, major roads, and some place names like Reykjavik, Akureyri, and Viding.

## 2017 - August - One initial flight route

Beyond visual line of sight

Very safe if something would go wrong

Allowed us to start operating and improving.

An aerial photograph of Reykjavik, Iceland, showing the city's layout, green spaces, and the surrounding landscape. A large, semi-transparent white map of Iceland is overlaid on the image, with the city's location highlighted. The text 'REYKJAVÍK' and 'ICELAND' is centered on the map overlay.

# REYKJAVÍK

ICELAND



# General challenges

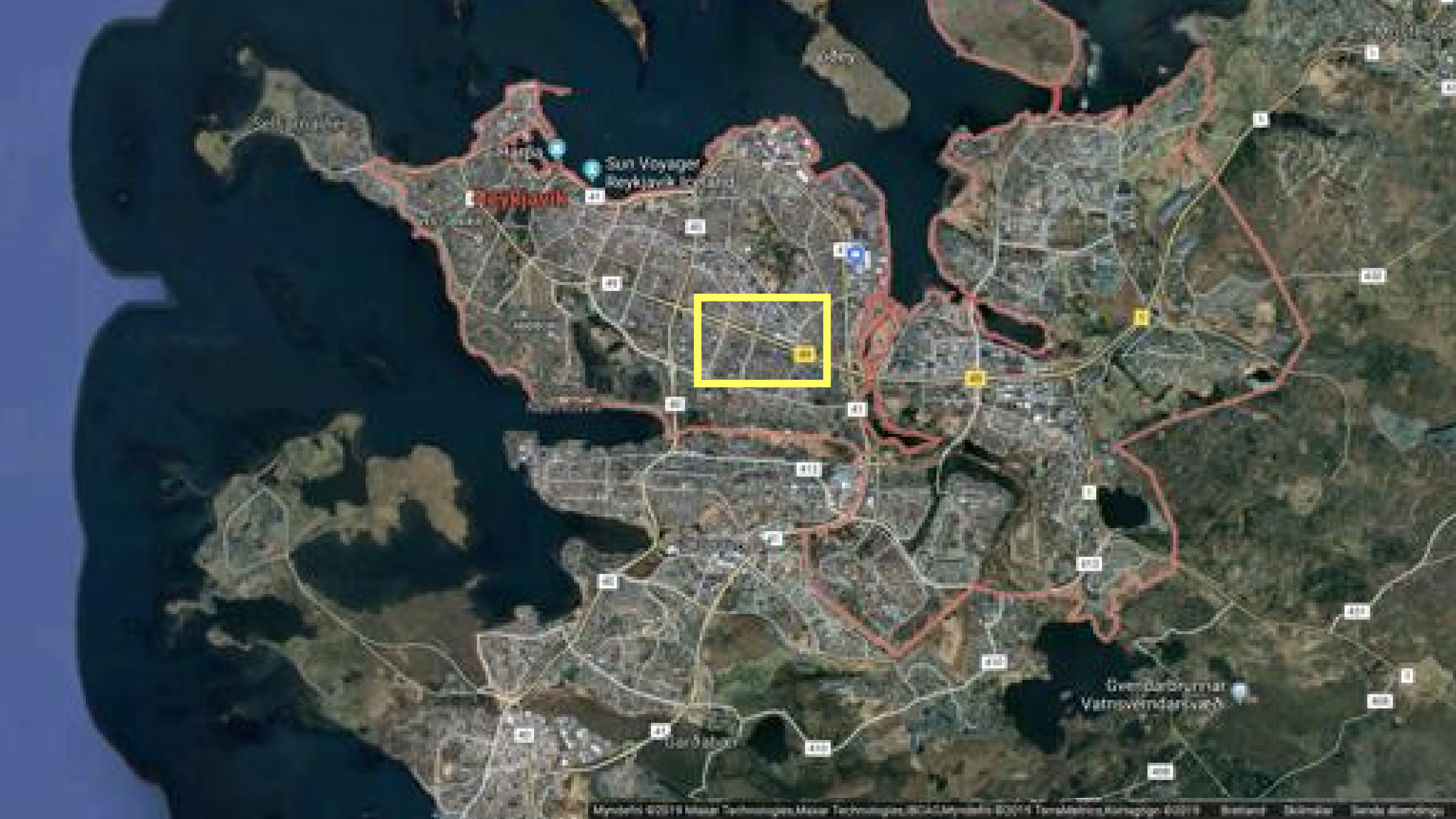
Harsh weather / temperatures have presented various challenges - most are now solved.

Relocated office and drone port next to Iceland's busiest intersection.

Parking space disputes taken to a new level - nobody wants to swap a parking space for an airport.

aha





الرياض

Sun Voyager  
Riyadh

دعواتكم  
Vatnowindarvach





Aerial view of a drone flying over a city landscape. The drone is in the center, carrying a black rectangular payload. The city below is a mix of green fields and buildings, with mountains in the distance under a blue sky with scattered clouds. A semi-transparent dark grey text box is overlaid on the lower-left portion of the image.

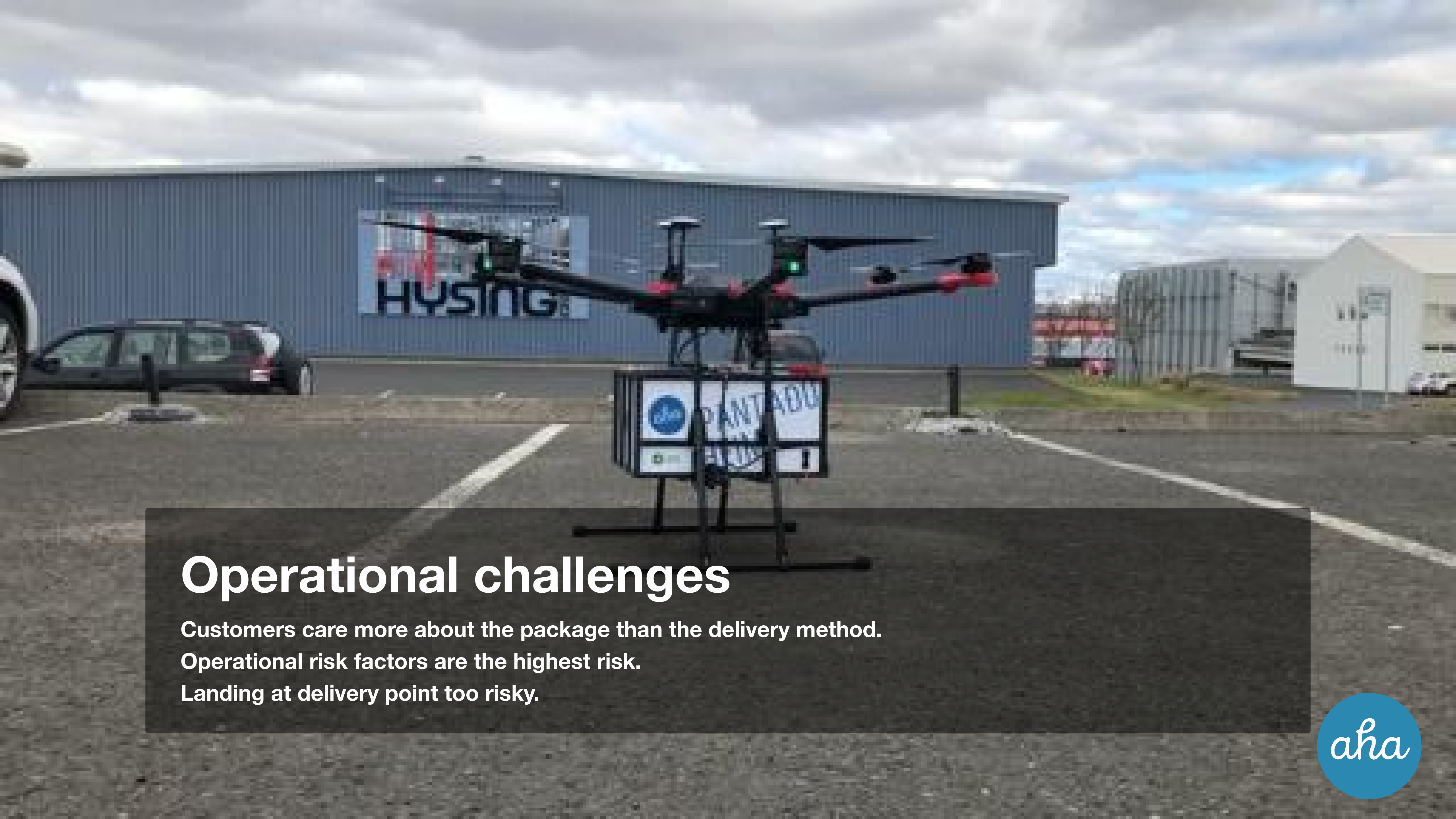
# Technical challenges

Firmware & software upgrades require significant testing

The perfect urban delivery drone does not exist - but the technology does.

Upgrades are fast and significant which requires constant relicensing - always preparing the next.

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# Operational challenges

Customers care more about the package than the delivery method.

Operational risk factors are the highest risk.

Landing at delivery point too risky.





# Public perception challenges

Remember - Steve Ballmer laughed at the iPhone .

Important to understand that regulated drone operations are not hobby drone operations.

Scaling is limited by our ability to deal with public concerns as they come up. Being operational is key.

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A map of Reykjavik, Iceland, showing a network of delivery routes. The routes are color-coded: blue, green, and red. The blue routes form a dense network in the central and southern parts of the city. The green routes are located in the northern part of the city. The red routes are located in the eastern part of the city. Several areas are circled in black, indicating specific delivery zones or points of interest. The map also shows the city's coastline, major roads, and green spaces.

# Constant routing and license upgrades

Very transparent with authorities and partners on what works and what does not

Now can deliver to about 44% of Reykjaviks area.

Mostly public points but gradually adding private backyards.

The logo for 'aha' is a teal circle containing the lowercase letters 'aha' in a white, cursive font.

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## Version 7

Direct to backyard rollout - license for 20K + homes

Greatly simplified for operator - seamless integration between delivery modes

Hardware is now capable of flight during rain - still being tested.

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# Current limitations

3 kg's by license, drone specs allow for 6-10 kg's

Range - 7-10 km (3 - 5 km each way) with battery returning at 40% +

Hardware specs say waterproof - we still want to test it.

and water

Video: DJI

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# The future of hardware

Larger faster quieter drones with parachutes for added safety

Drones are currently getting larger with more features at a lower price point

VTOL longer range winged drones likely to take off once quad- & hexacopters are proven safe.

Video: DJI



# The future consumer is already prepared

Last mile delivery & returns fast - they don't care how.

Immediate delivery for no money with no environmental effects.

10 year olds today will be 20 year olds soon- for them - drones are normal.



# Aha's future roadmap

Perfect urban operations in the harsh  
conditions of Iceland

Seek to work with cities to enable  
operations outside of Iceland

Focus on multiple modes of delivery  
operations rather than a single  
technology



**Thank you**

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