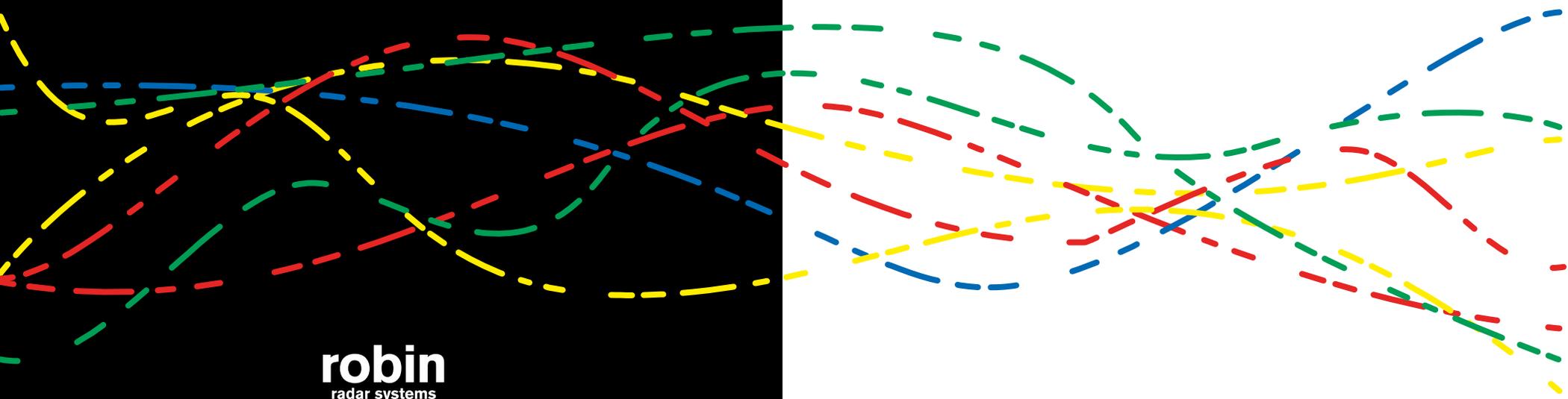


# DATA DRIVEN KPI'S IN BIRD HAZARD MANAGEMENT





### Mistakes in creating KPIs

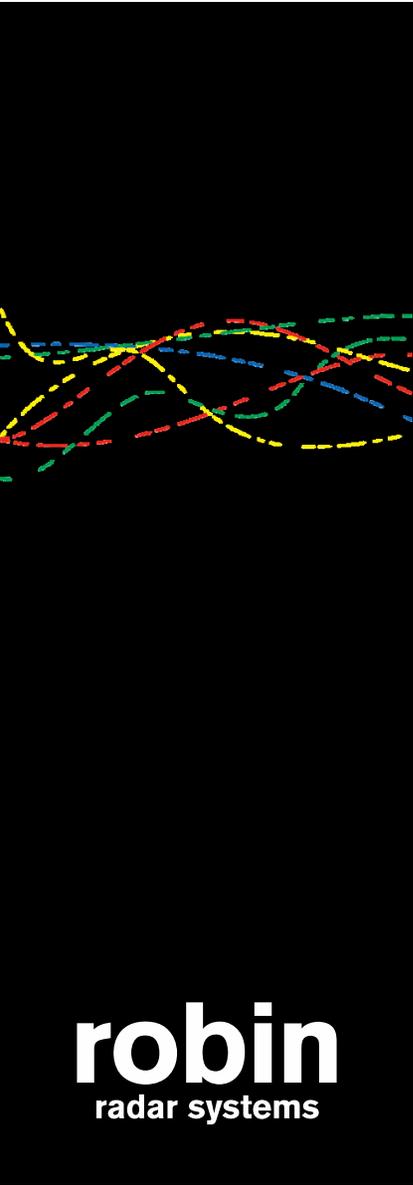
Building KPI system plays an important role in evaluating job performance of individual parts, divisions and the company's objectives and performance management system in general. The development of KPI metrics help to create measurement systems, information systems throughout the organization.

1. When building KPI system, you should note the following factors:
2. Do not create too many KPI. KPI is built around 3-5 KRAs.
3. KPI should change to suit each stage (depending on your goals).



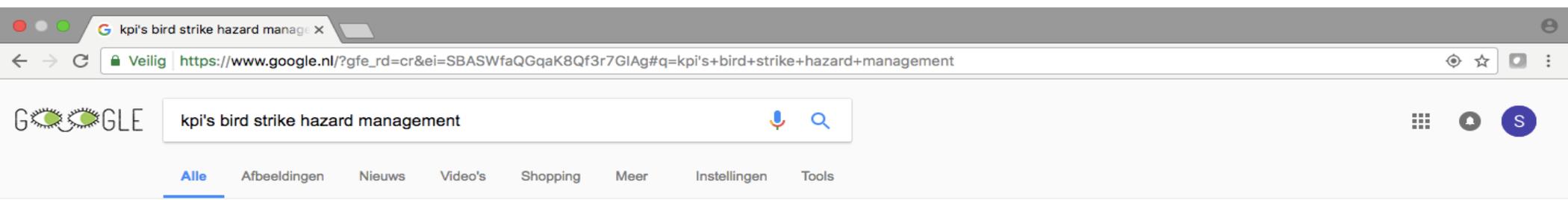
### KPI visualization

Category	Value	Change	Target
Revenue	6,360	+5.1%	6,500
Profit	4,511	+3.2%	4,600
Costs	5,752	-1.5%	5,800
Customer Satisfaction	8,777	+0.5%	8,800
Employee Retention	41	-2.1%	42
Market Share	203	+1.8%	210
Operational Efficiency	12	+0.8%	13
Productivity	1,234	+0.2%	1,250
Quality Control	0	+0.1%	0
Customer Loyalty	318	+0.3%	320
Brand Awareness	76	+0.4%	80
Customer Support	41	+0.1%	42
Operational Risk	0	+0.0%	0
Customer Engagement	12	+0.2%	13
Operational Cost	1	+0.1%	1
Customer Retention	1	+0.1%	1
Operational Efficiency	1	+0.1%	1
Customer Satisfaction	1	+0.1%	1
Operational Risk	1	+0.1%	1
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A **Key Performance Indicator (KPI)** is a **measurable** value that demonstrates how effectively a company or organization is achieving key (business) objectives.

**Key performance indicators (KPI)** are a set of quantifiable **measures** that a company (organization) uses to gauge its performance over time.



Pilot report: minor blood stain on the left wing. No damage.

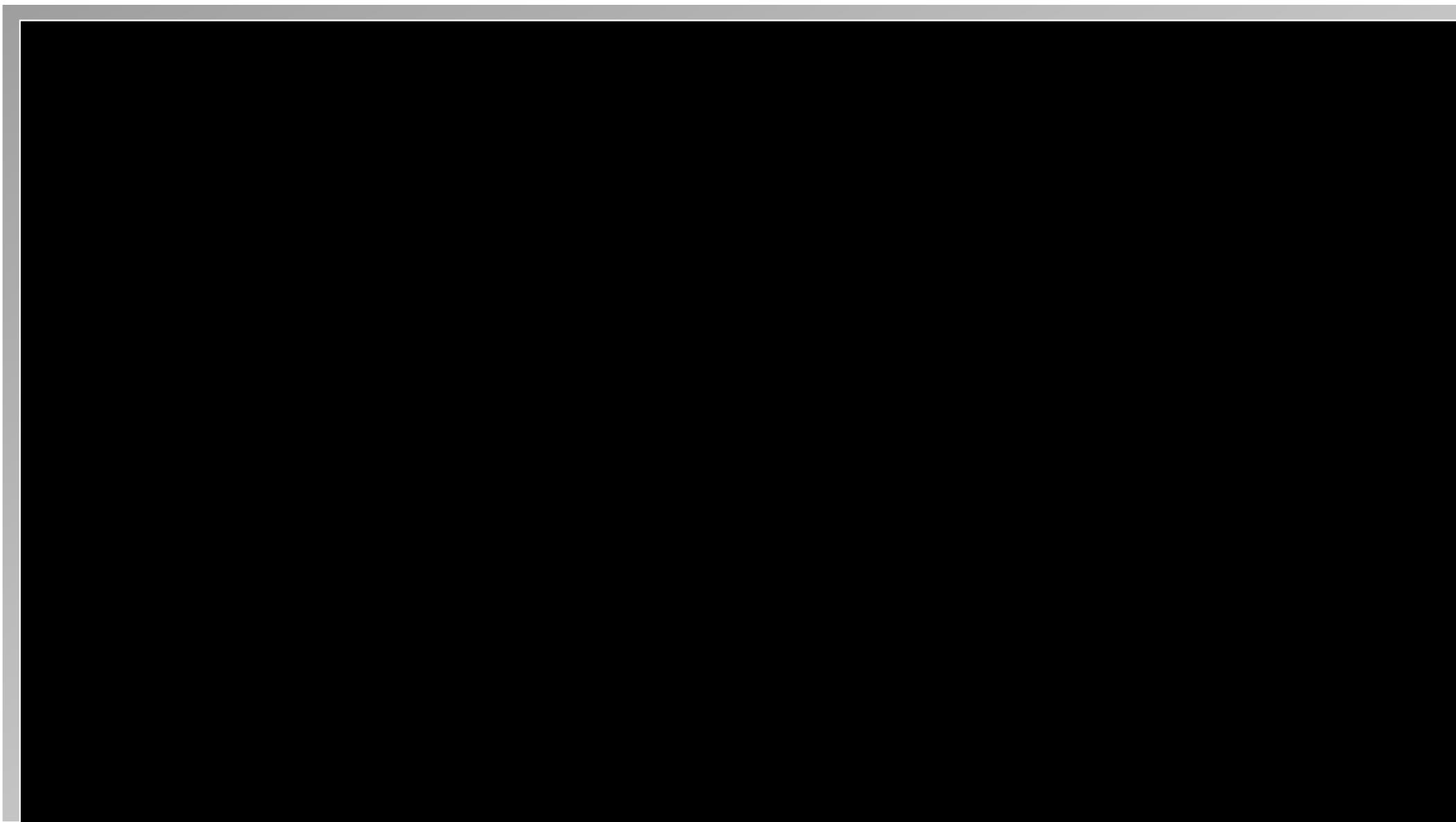
Small dead bird on the runway but no pilot report. (Other airports may not have counted this one.)

||||

6 instead of 5 last month = increase of 20%. So we became 20% less effective!!

16 gulls, three of them in the engine, one on the nose. >> emergency landing







Robin

**robin**  
radar systems

The logo for MAX, featuring the word "MAX" in a bold, orange, sans-serif font with a registered trademark symbol (©) to its upper right. The background of the slide is a photograph of a white, curved radar antenna mounted on a metal base in a grassy field. In the background, a small airplane is flying in a clear blue sky with light clouds. The antenna has the word "robin" written vertically on its side in a colorful, stylized font. On the left side of the slide, there is a black vertical bar containing the text "robin radar systems" at the bottom and a decorative graphic of colorful, dashed lines forming a wave pattern at the top.

**MAX**©

The 3rd generation avian radar:

- ✓ • is a phased array, FMCW technology based X-band radar (9650 Mhz);
- ✓ • Weighs 325 kgs;
- ✓ • With beautiful curves: (H= 2000 mm, W = 1250 mm, D= 500 mm);
- ✓ • Has a high rotation speed: 60 RPM.

**robin**  
radar systems



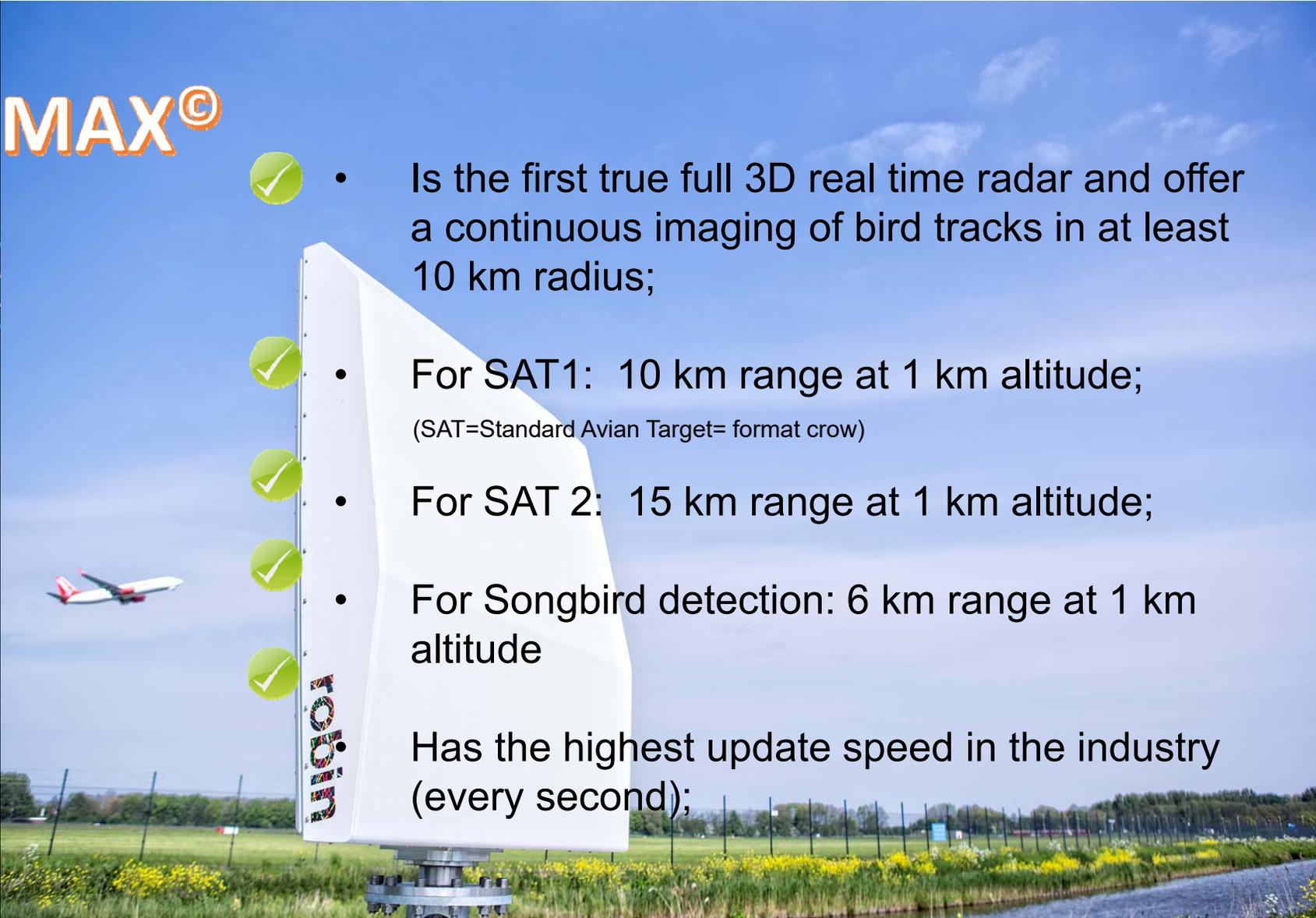
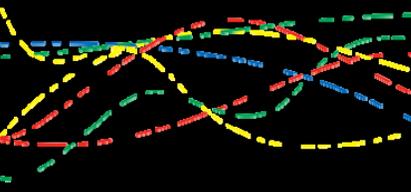
MAX<sup>©</sup>

- ✓ • Is the first true full 3D real time radar and offer a continuous imaging of bird tracks in at least 10 km radius;
- ✓ • For SAT1: 10 km range at 1 km altitude;  
(SAT=Standard Avian Target= format crow)
- ✓ • For SAT 2: 15 km range at 1 km altitude;
- ✓ • For Songbird detection: 6 km range at 1 km altitude

Has the highest update speed in the industry (every second);



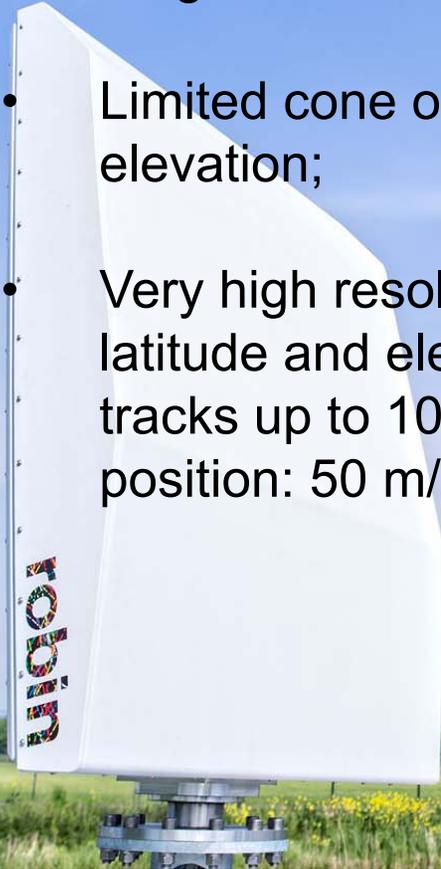
robin  
radar systems



The logo for MAX, featuring the letters 'MAX' in a bold, orange, sans-serif font with a registered trademark symbol (©) to the upper right.

## USP's

-  Single sensor, less moving parts;
-  Limited cone of silence, due to 60° beam elevation;
-  Very high resolution, providing longitude, latitude and elevation details of individual bird tracks up to 10 kms (height: 30 m/10 kms and position: 50 m/10 kms);

The logo for robin radar systems, with 'robin' in a large, bold, white, lowercase sans-serif font and 'radar systems' in a smaller, white, lowercase sans-serif font below it, all on a black background.A large, white, rectangular radar antenna mounted on a metal base. The word 'robin' is printed vertically on the left side of the antenna in a colorful, stylized font. The antenna is positioned in a grassy field with yellow flowers in the foreground. In the background, there is a fence, trees, and a clear blue sky with a few clouds. An airplane is visible in the sky to the left of the antenna.

The logo for MAX, featuring the word "MAX" in a bold, orange, sans-serif font with a registered trademark symbol (©) to its upper right. The background of the slide is a photograph of a white radar antenna on a grassy field with yellow flowers, with an airplane flying in the blue sky in the background.

# MAX<sup>©</sup>

## USP's



- No restrictions to maximum cable length to the processing unit, as data can be transferred by fiber optic cable to IT server room, hence using existing airport infrastructure;



- Lower maintenance costs: no magnetrons to be replaced on regular basis;



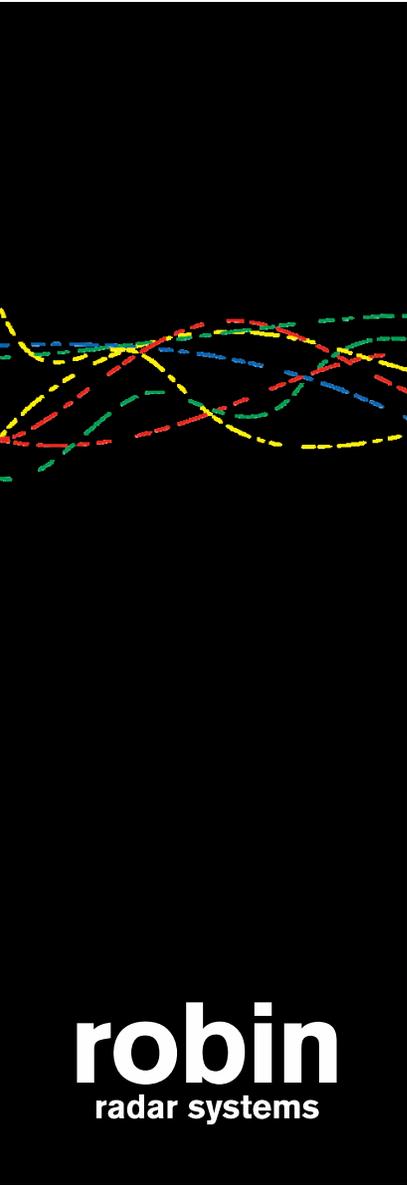
- Maintenance friendly: as components are modular and can be swiftly replaced;



Works with existing ROBIN software, user friendly and proven

The logo for robin radar systems, with "robin" in a large, bold, white, lowercase sans-serif font and "radar systems" in a smaller, white, lowercase sans-serif font below it, all on a black background.

**robin**  
radar systems



### Birds during the day

### Type of birds

### Origing of bird tracks

Date

2/5/2017

Bird type

All

Start date comparison

1/1/2017

End date comparison

2/7/2017

# bird tracks (risk line)

3,200

# runway crossings (risk line)

250

# near misses (risk line)

3

Start Airport

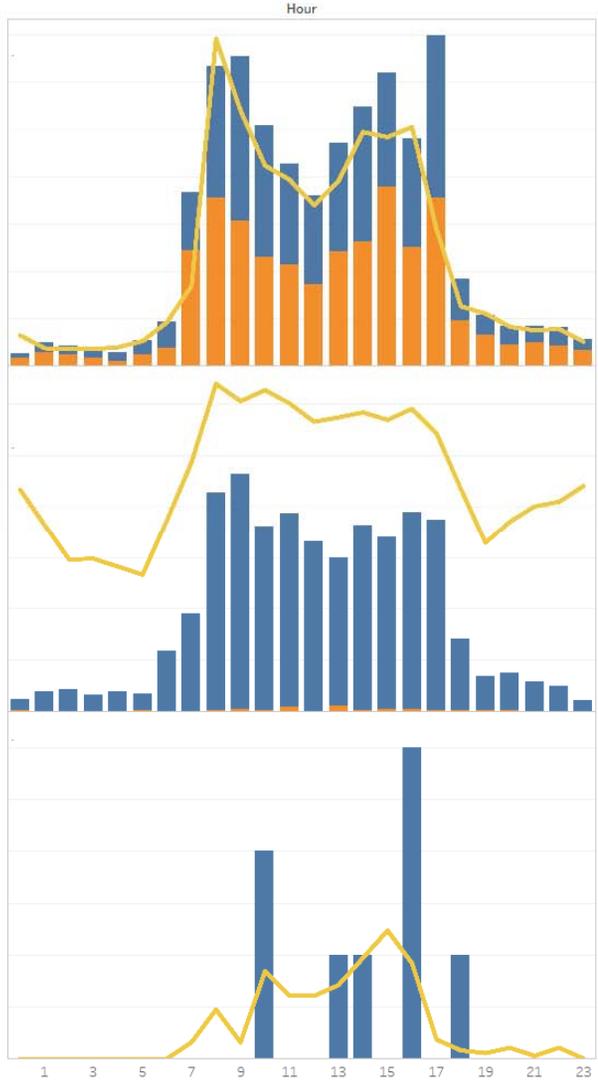
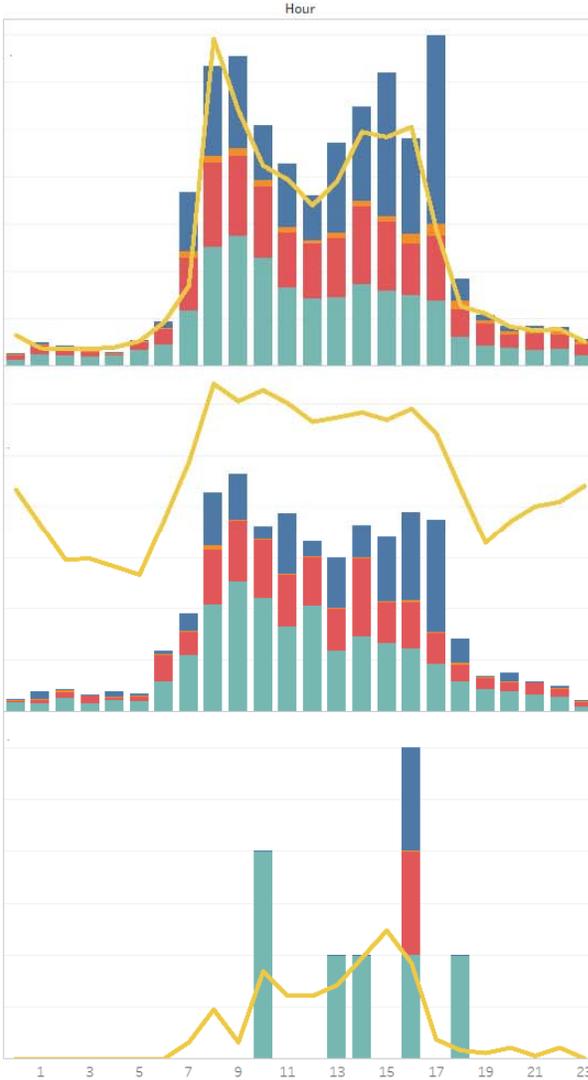
- At airport
- Outside airport

Classification

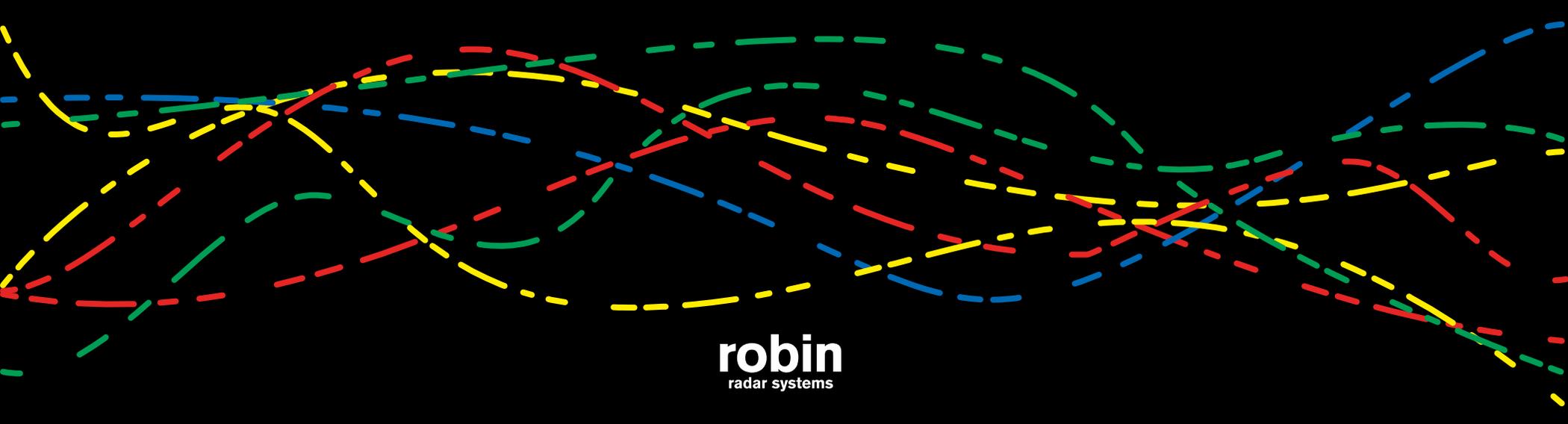
- Flock
- Large bird
- Medium bird
- Small bird

Risk

- Above risk level
- Below risk level



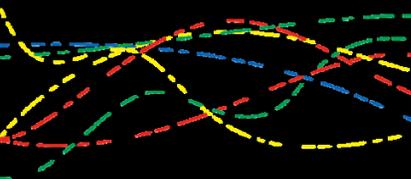
# OUTLOOK

The background of the lower half of the slide features a series of overlapping, wavy dashed lines in various colors including yellow, red, green, and blue. These lines create a sense of motion and depth against the black background.

**robin**  
radar systems

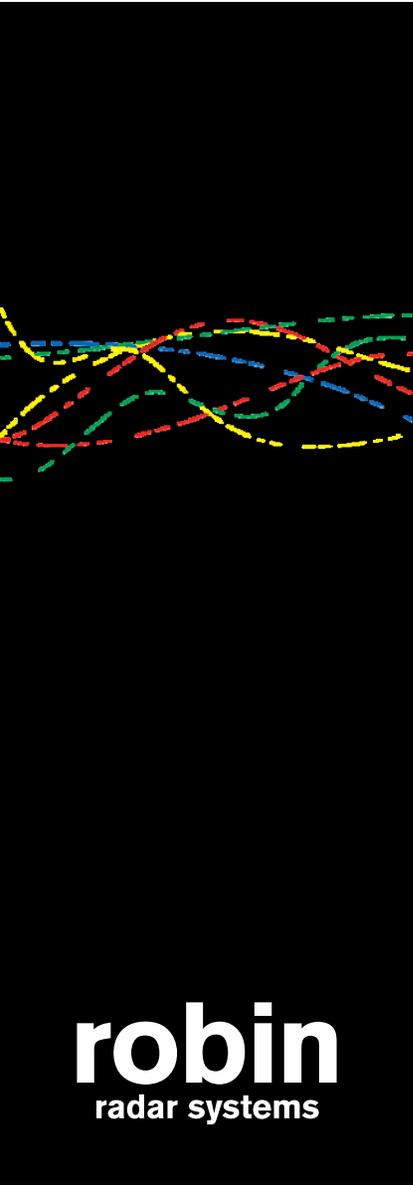
# FUTURE

- Data driven airports
- Increased situational awareness amongst all stakeholders
- Real time & Historical Data Analysis
- Moving from counting bird strikes to next level KPI's
- Airside Safety as communities - benchmarking KPI's & sharing best practices
- Fusing drone and bird detection



**robin**  
radar systems

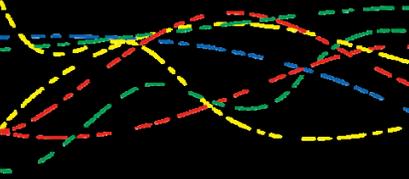




INSTALLED BASE

2019

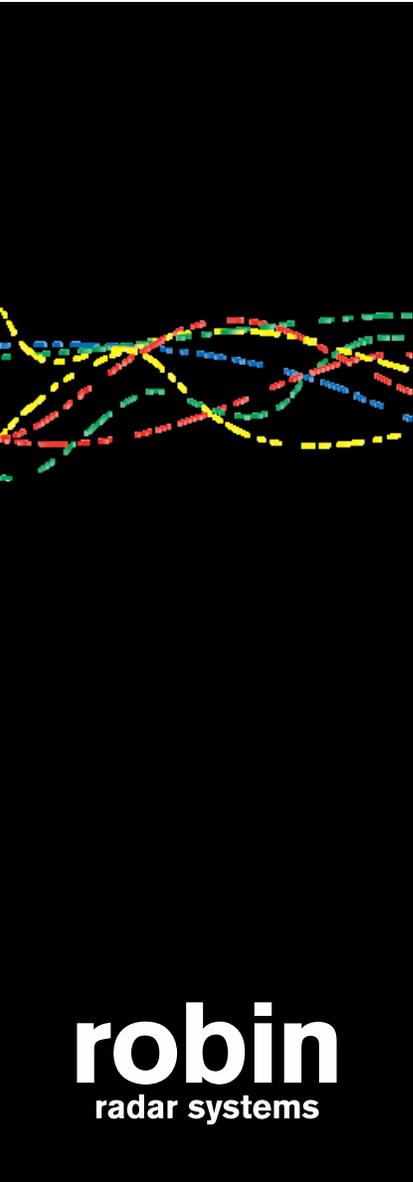


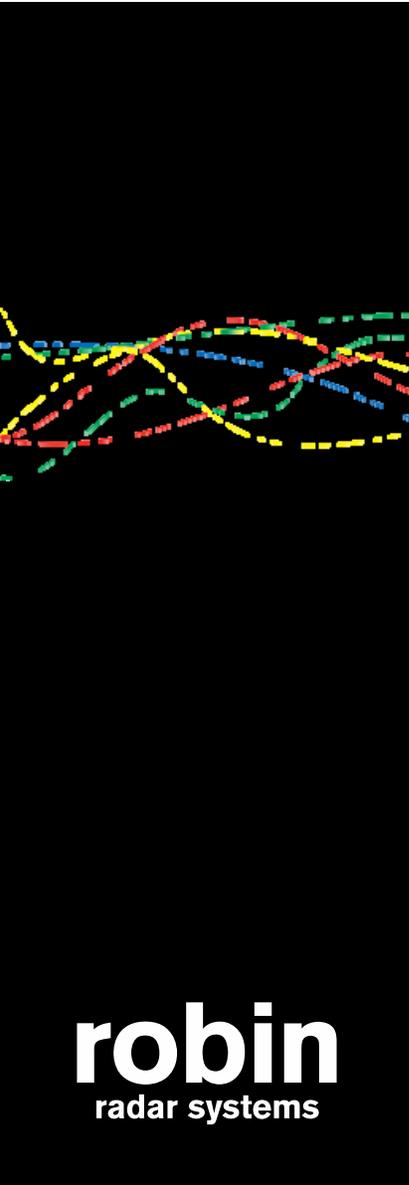


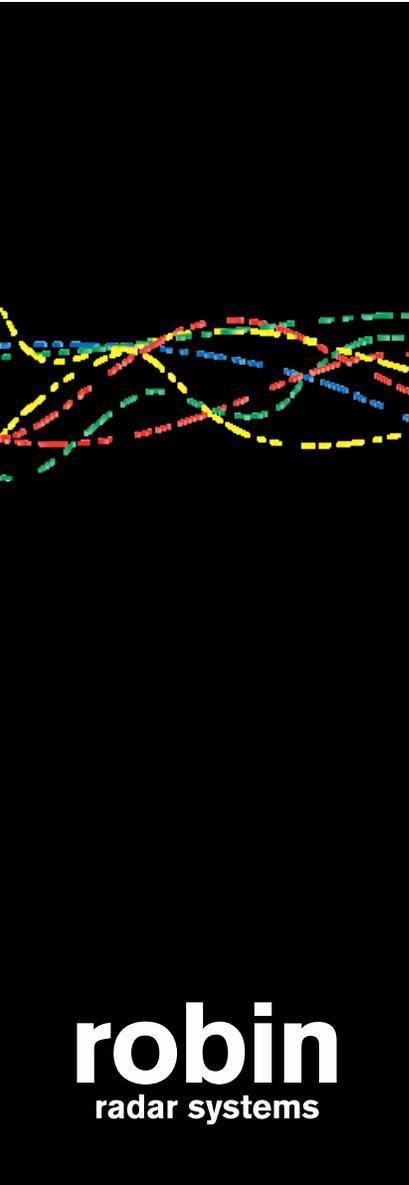
**robin**  
radar systems



**Rotterdam The Hague**  
*Airport*

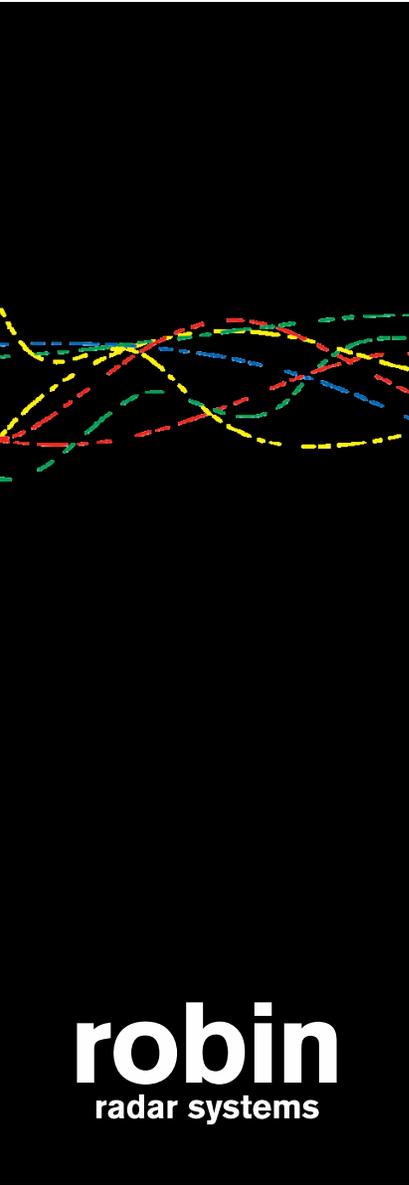






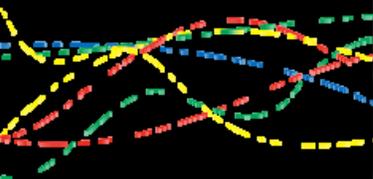
**BER** FLUGHAFEN  
BERLIN  
BRANDENBURG

**robin**  
radar systems



**Schiphol**  
Amsterdam Airport

**robin**  
radar systems



**robin**  
radar systems

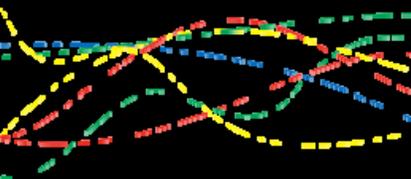


Royal Netherlands Air Force



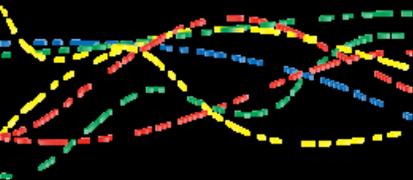
**All operational  
RNLAf airbases**

**robin**  
radar systems



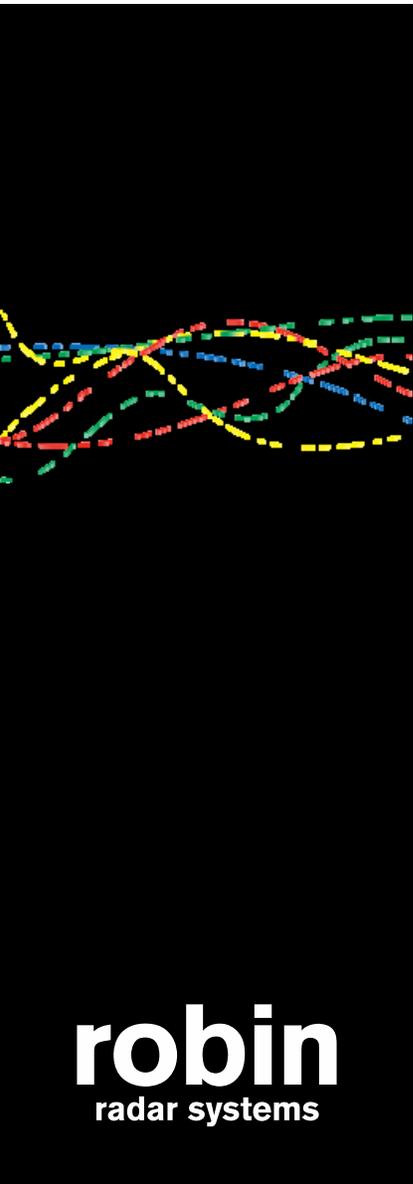


Royal Netherlands Air Force



**robin**  
radar systems





**Including the Vliehors bombing range**

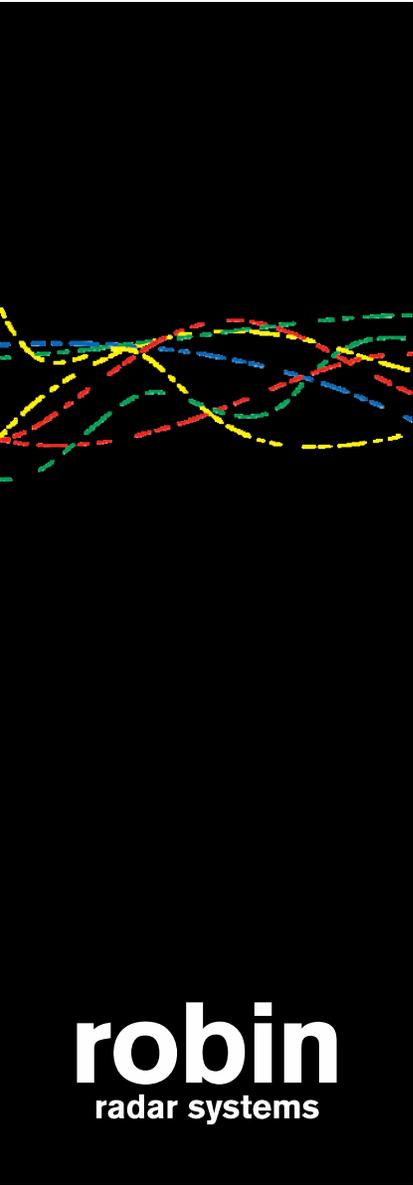


Royal Netherlands Air Force

# Ready to receive the F-35



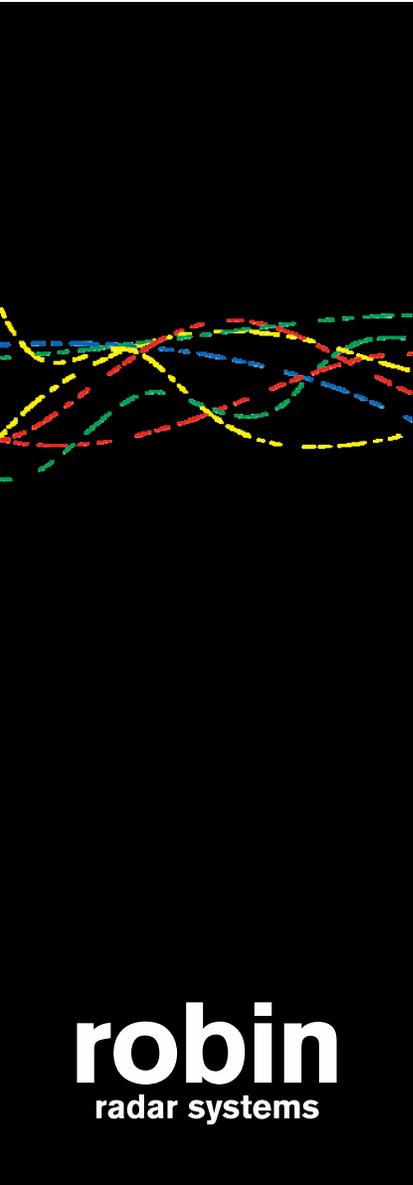
**robin**  
radar systems



INSTALLED BASE

2019

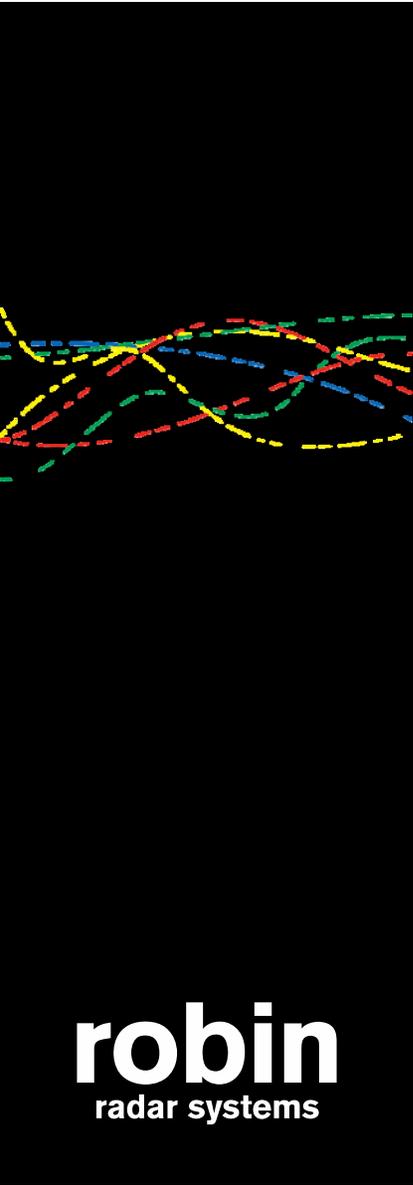




INSTALLED BASE

2023

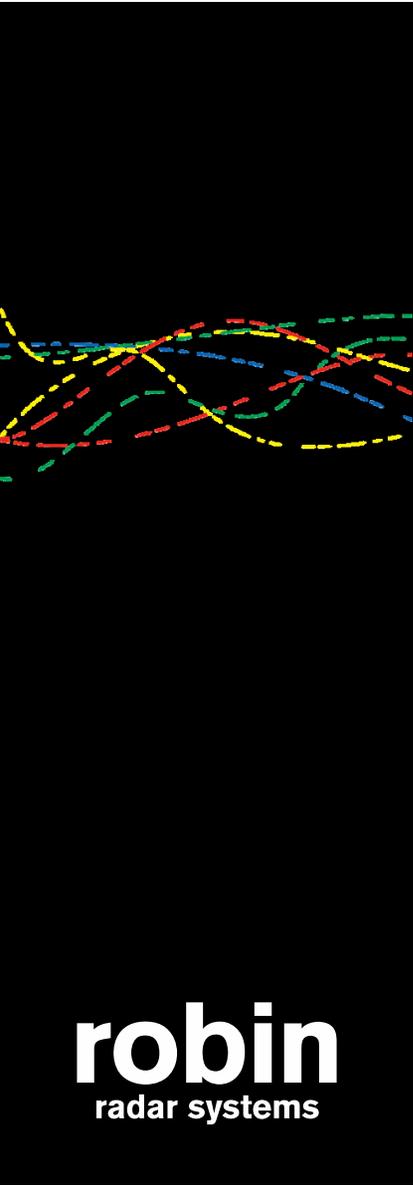




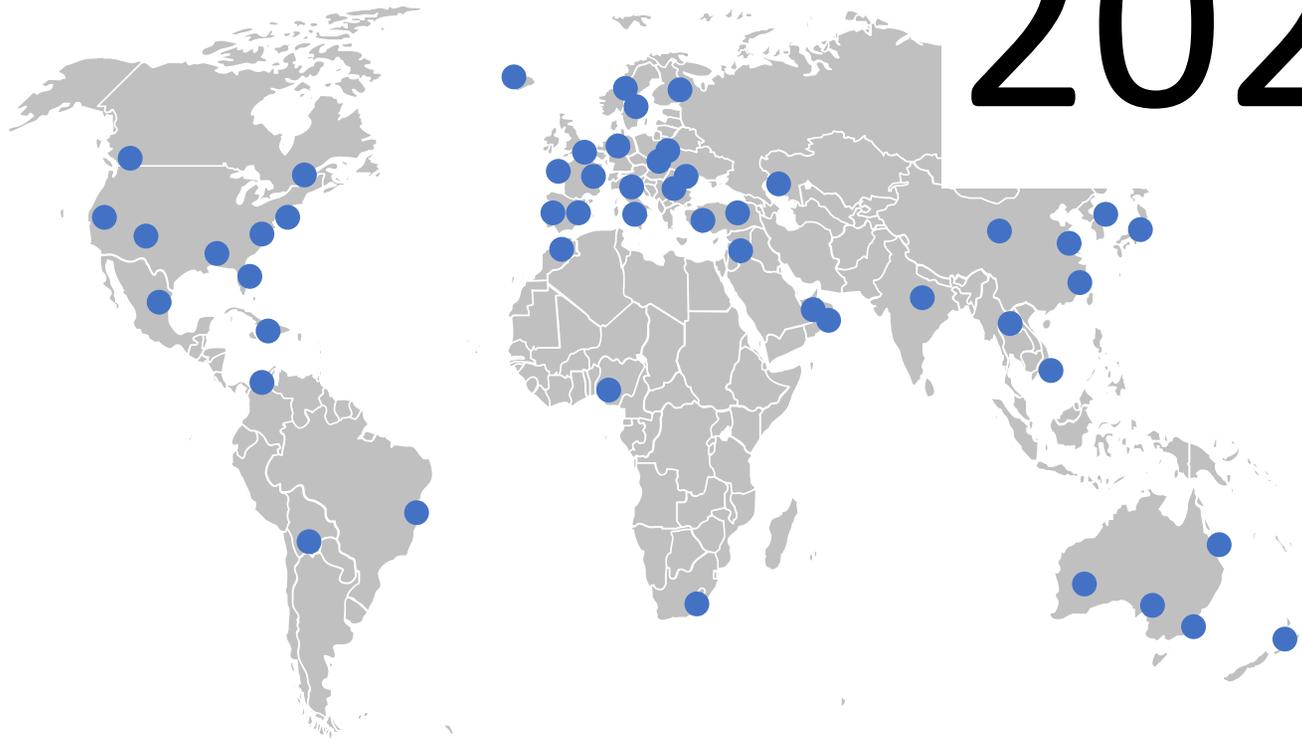
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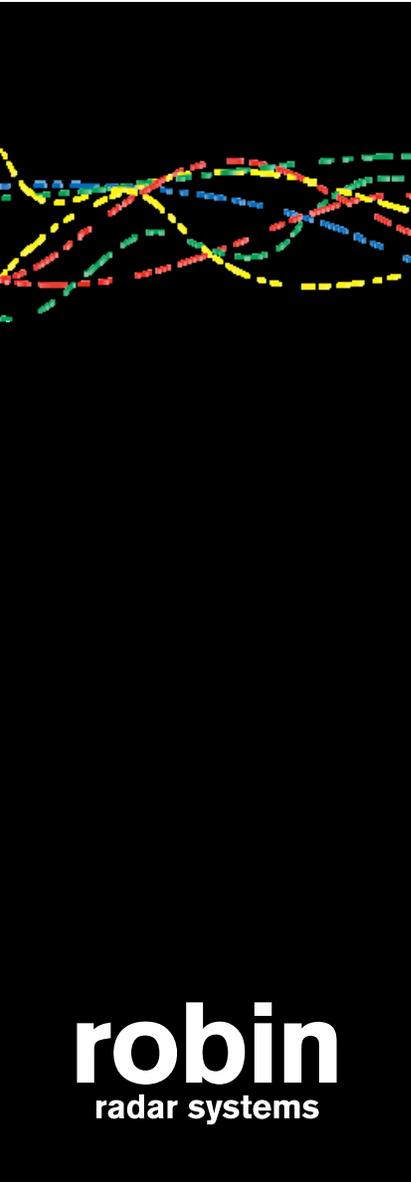
2028





# INSTALLED BASE 2028





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Thank you. Questions?

**robin**  
radar systems

