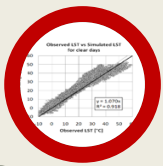


# ROAD WEATHER INTELLIGENCE

ARTIFICIAL INTELLIGENCE PAVING THE WAY FOR ROAD SAFETY



2013

The journey begins with a team of 5 people focusing on the development of the first road weather application in the world. Winter maintenance contractors was the first industry to describe the need of more denser data with when, where and what to perform.

**RENEWAL:** Road Status Information, RSI was born.



2015

Svevia, PEAB och NCC was the first early adopters to new technologies. From the users came more demands with more data integrations.

**RENEWAL:** The first integration in the world with data from connected spreaders was implemented together with the first digital residual salt model.



2017

Enköping (State road contract, Sweden) became a central HUB for innovations focusing on ITS and Road Maintenance. An open network gathering relevant stake holders on the Swedish market.

**RENEWAL:** Klimator Road Weather Forecasts was show cased with the objective to create the most optimal route based on weather condition. The idea of IoT Road Weather stations was born in HedeDenmark.

klimator



2019

Klimator expanding to Denmark with a partnership agreement with HedeDenmark.

**RENEWAL:** The new RSI Dashboard was launched in close collaboration with users from Sweden and Lithuania. The objective was to simplify users to analyze all big data sets in one view.

Klimator AHEAD system was launched in POC-mode together with PEAB Gothenburg. BONNIER NEWS and Expressen implements slippery risk map.



2021

RSI have 800 daily users on four markets and is launched in Finland with two POC contracts. The interest for Dynamic operations is growing. Partnership agreement with AFRY and Volvo Cars is signed to provide Floating Car Data to the industry. Klimator acquires HedeDenmark digital solution with IoT stations.

**RENEWAL:** The first version of KPI dashboard was launched in RSI containing Road Weather Forecast quality, contractor operations and data from connected cars. Winter Maintenance Index, WMI is used to follow the full process and performed quality.



2023

More customers, State Road Contractors and municipalities are onboarded into RSI and E-learning platform was launched. Sweden, Denmark, Finland, Lithuania, UK and Norway are focused markets. The RSI platform is upgraded to support scale up strategy and the heavy use of compute power.

**RENEWAL:** The IoT Weather station adds more abilities based on customer request. Klimator AHEAD technology for ADAPTIVE salting is starting up in a POC-mode.



2014

The first functional version of Road Status Information was demonstrated in November 2014 and Svevia - Sweden was the first POC customer using and evaluating RSI.

**RENEWAL:** The collaboration with Volvo Cars resulted in the first integration of Floating Car Data in the world. Showed the ability to use Friction as an indicator of performed operations.



2016

Road Status Information was show cased around northern Europe with a first intention to commercialize the product with packages and pricing.

**RENEWAL:** First development om using optical sensors for winter maintenance. The RSI software started to publish Tweets (Twitter) with latest road weather forecast.



2018

Internationalization: Road Status Information was launched at ITS Europe, Gdansk, Rostmos – Copenhagen and Sirvec, Slovenia showcasing the first ecosystem in the world including, Forecasts, treatment recommendations, real time maintenance data and data from connected cars. RSI started it's international journey with a first European contract, Lithuania. In Sweden PEAB made their first commercial contract with Klimator.

**RENEWAL:** Improved models prepared for scale up strategy. New layers for mobile data and optical sensors.



2020

2020 Klimator entered the Norwegian market with a POC – contract with MESTA.

Rebuilding the first RSI version and adopting to Amazon Web Services in preparation to scale up. Partner strategy was identified and launched. First partnership was written with Zeekit Norway.

**RENEWAL:** Optical laser data influences the forecast.



2022

RSI is gaining more customers on all markets and UK is launched with several commercial contracts. Based on commercial wins.

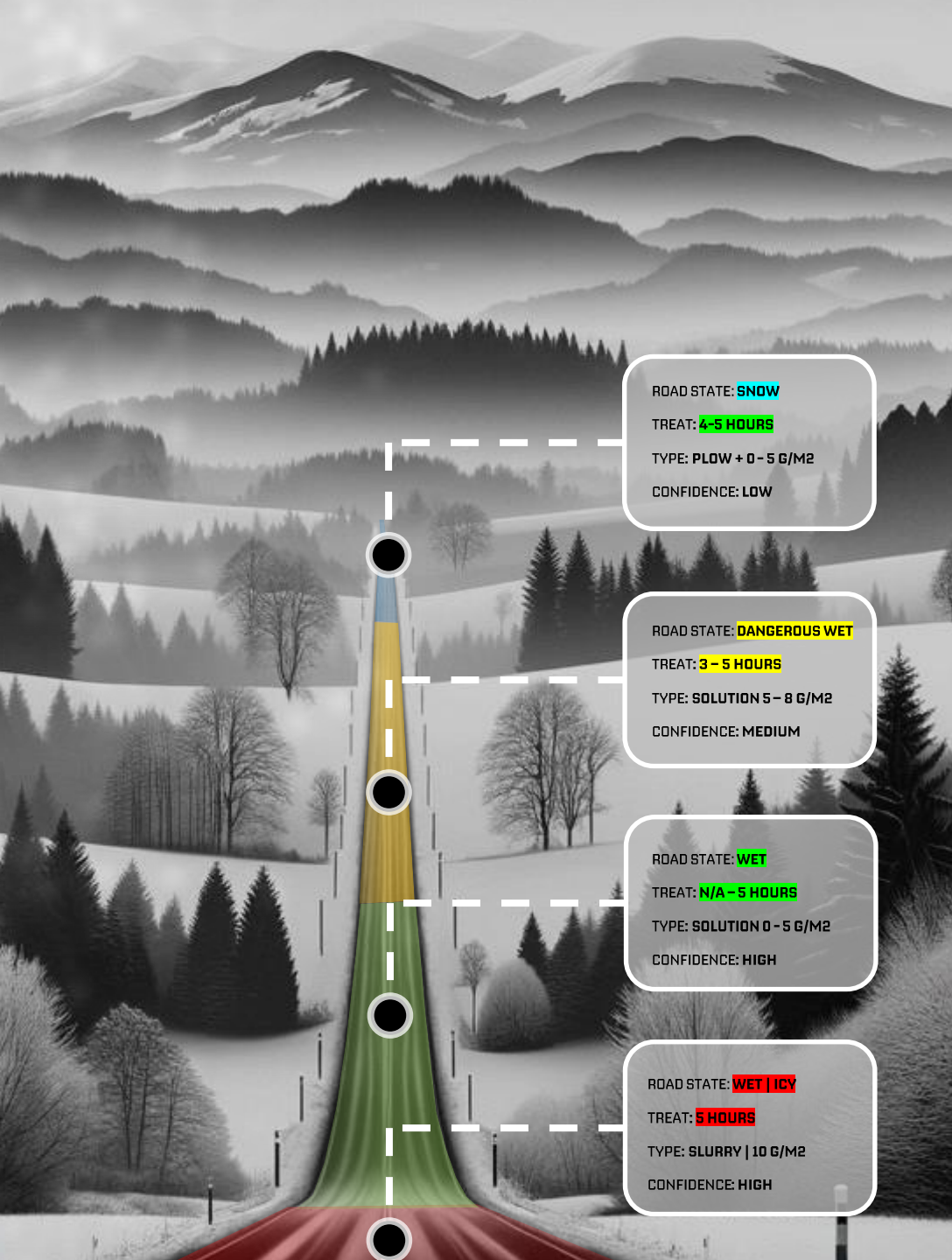
**RENEWAL:** New treatment recommendation algorithm is launched combined with a new API for partners to extract data from with Dynamic Operations in mind.



2024

10 years of innovators and contractors has put RSI in a leading position on the European market. From the basic idea with Road Weather Forecast, RSI today supporting contractors with dynamic data for dynamic operations. And the saving potential is growing every day.

**RENEWAL:** Dynamic dosage is implemented by partners by downloading the treatment recommendation from RSI and configure the spreader to follow the forecast.



ROAD STATE: **SNOW**  
TREAT: **4-5 HOURS**  
TYPE: PLOW + 0 - 5 G/M2  
CONFIDENCE: LOW

ROAD STATE: **DANGEROUS WET**  
TREAT: **3 - 5 HOURS**  
TYPE: SOLUTION 5 - 8 G/M2  
CONFIDENCE: MEDIUM

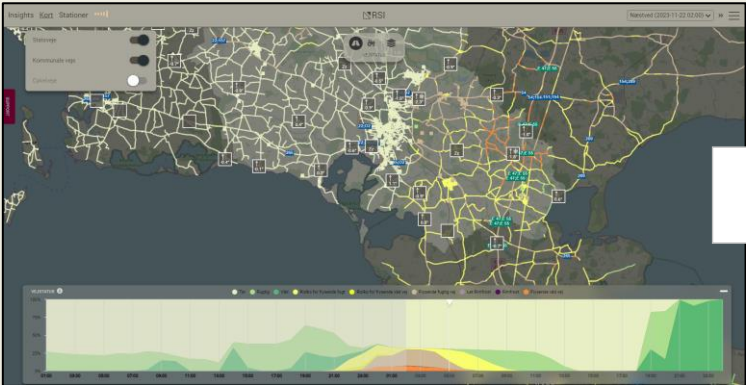
ROAD STATE: **WET**  
TREAT: **N/A - 5 HOURS**  
TYPE: SOLUTION 0 - 5 G/M2  
CONFIDENCE: HIGH

ROAD STATE: **WET | ICY**  
TREAT: **5 HOURS**  
TYPE: SLURRY | 10 G/M2  
CONFIDENCE: HIGH

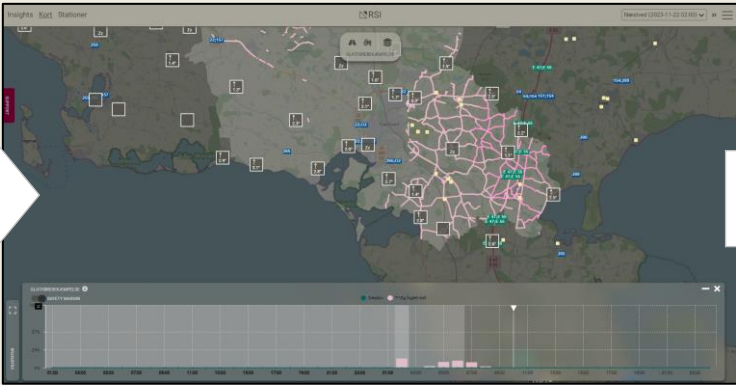
## WHAT'S THE DIFFERENCE?

- Pureplay road climatology focus - We analyse bottom-up.
- Klimator **predictive** models using road climatological variations using weather only as one of many data sources.
- **30 years experience** in road climatology; research, development and implementation.
- 15 years experience of utilizing **vehicle data**
- 10 years experience utilizing **optical sensors**
- 5 years experience utilizing **computer vision** for slippery roads.

# USE CASE DYNAMIC SALTING



ROAD CONDITION FORECAST



TREATMENT FORECAST  
BASED ON WEATHER EVENTS  
AMOUNT, LIQUID, MOISTNED SALT, DRY SALT



TREATMENT FORECAST  
INTEGRATED WITH SPREADER

OPERATIONAL DATA BACK TO RCD



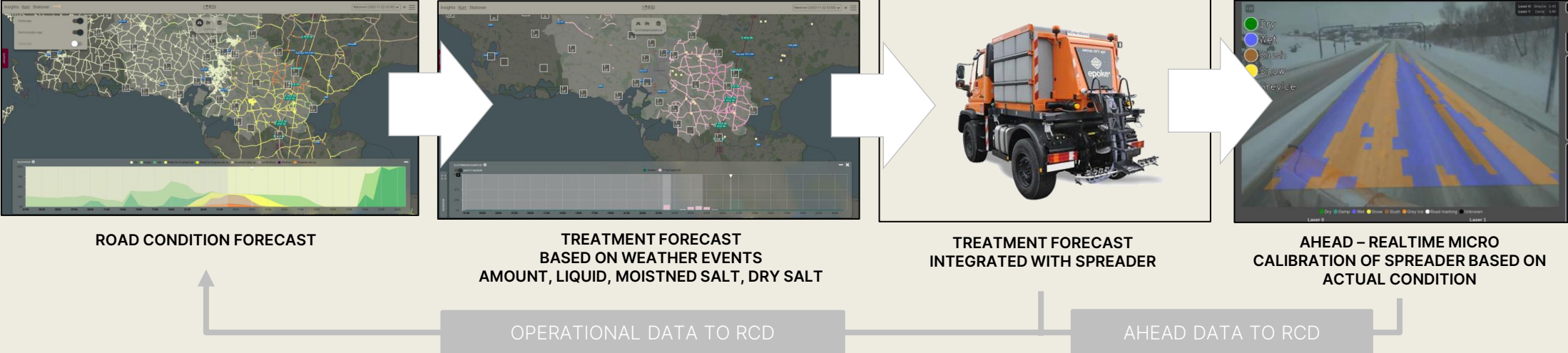
FAABORG-MIDTFYN  
KOMMUNE



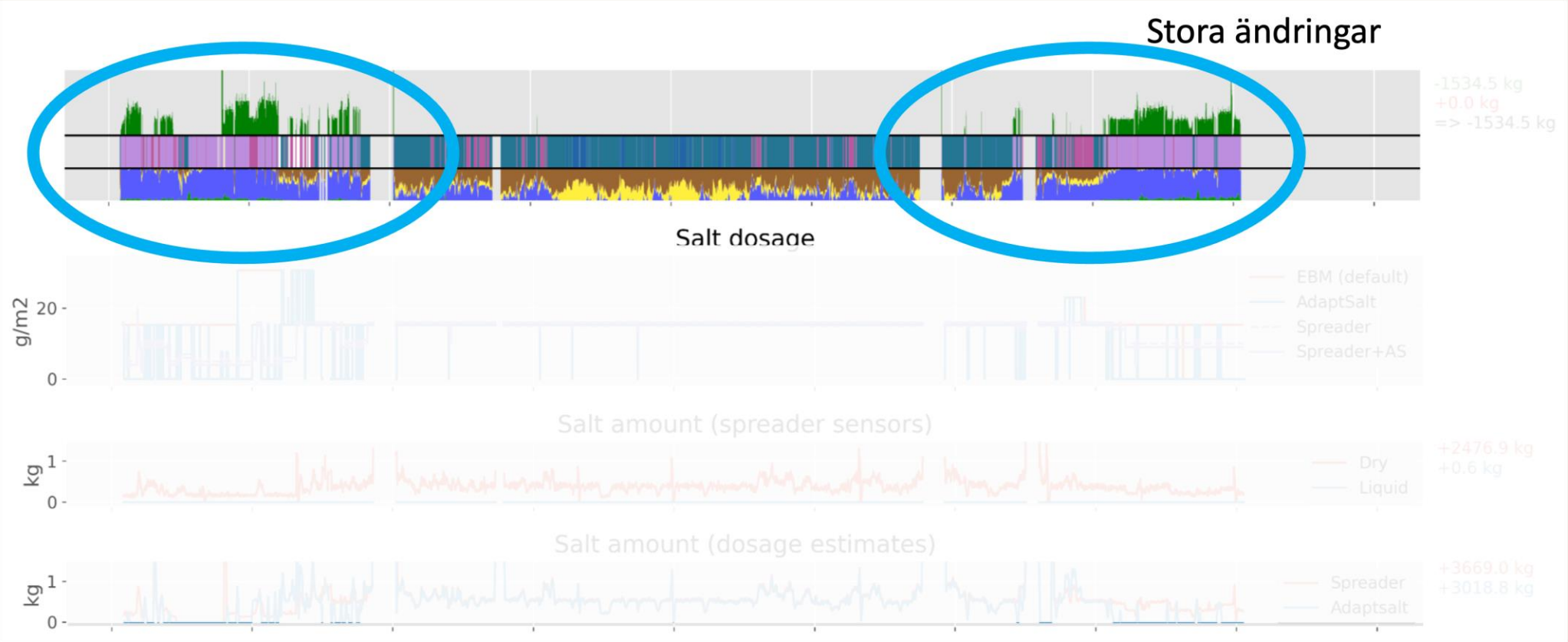
SVEVIA



# USE CASE ADAPTIVE (AUTONOMOUS) SALTING



# USE CASE ADAPTIVE (AUTONOMOUS) SALTING



# RSI INDUSTRY STANDARD | DEVELOPED #TOGETHER

## ROAD AUTHORITIES



## STATE ROAD CONTRACTORS



## ROAD STATUS IN SHORT.

- ESTABLISHED IN SEVEN COUNTRIES
- ROADS & BIKING LANES
- +200 CONTRACTS
- SAVINGS FROM 10 – 55%
- + 1500 USERS

## MUNICIPALITIES | SMART CITIES



## PARTNERS | COLLABORATORS

