Is it just heavy rain?
**Or is it a hazard?**

NIVUS RAIN knows.

NIVUS|RAIN

*Protecting people and values.*

NIVUS RAIN protects people and assets.

It provides reliable forecasts of heavy rain - to the nearest street. And up to 60 minutes earlier than other warning systems.

The high-resolution and street-level accurate forecast can provide a time lead of up to 60 minutes to get ahead of the situation.

60
MINUTES
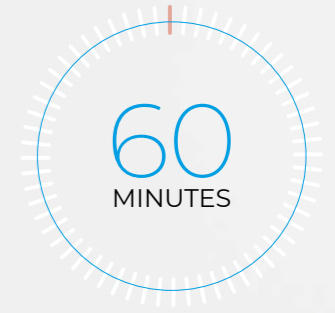
This is essential for rescue and emergency services to correctly prioritize impending operations, and for residents and local industry to initiate individual protective measures in time.
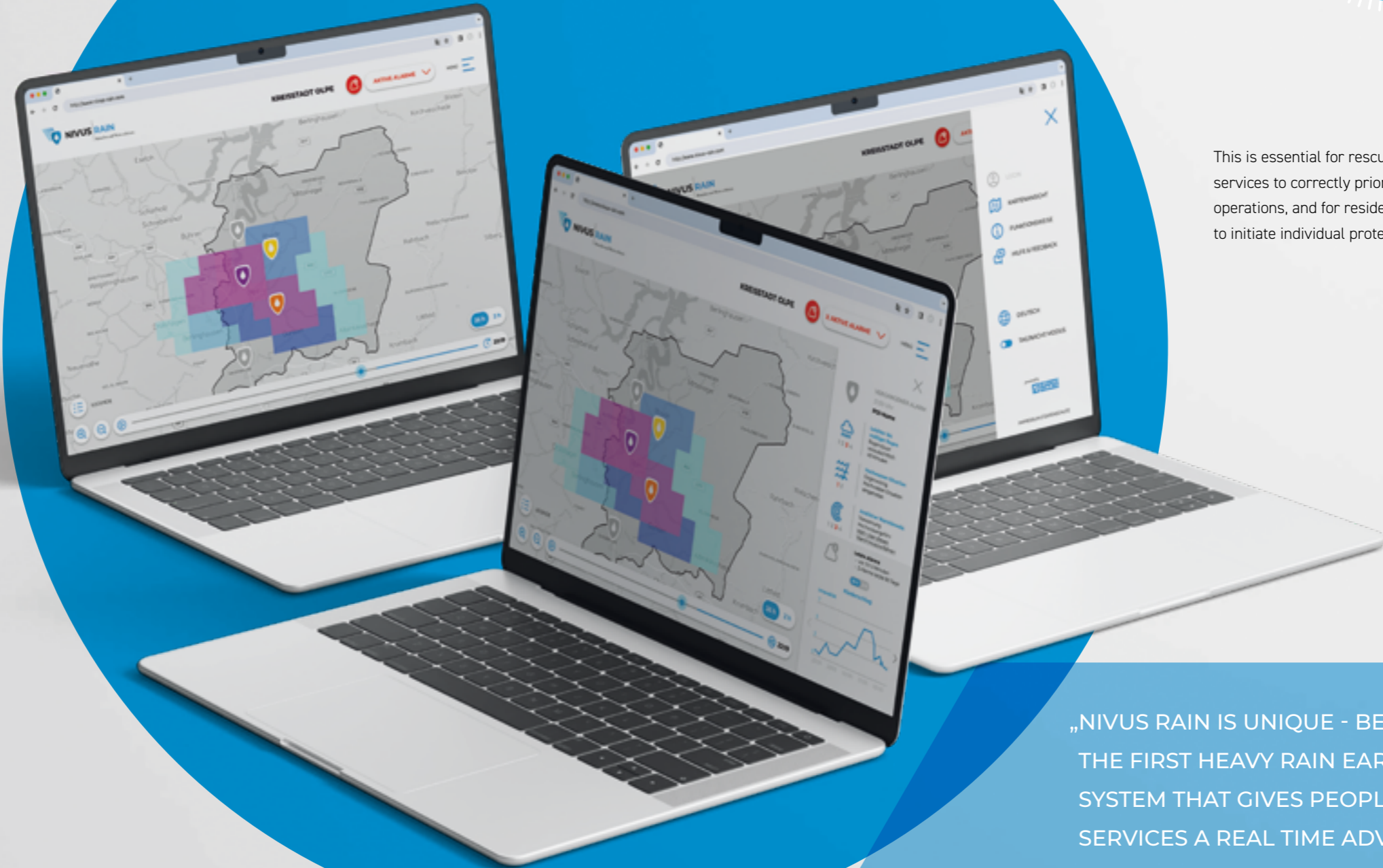
„NIVUS RAIN IS UNIQUE - BECAUSE IT IS THE FIRST HEAVY RAIN EARLY WARNING SYSTEM THAT GIVES PEOPLE AND EMERGENCY SERVICES A REAL TIME ADVANTAGE - UP TO 60 MINUTES. THIS CAN REALLY SAVE LIVES AND PROTECT ASSETS."

ALEXANDER BUDDRICK / NIVUS RAIN

NIVUS RAIN
Protecting people and values.

NIVUS RAIN alerts you anytime, anywhere.

Reliable. 24 hours a day, 365 days a year. **NIVUS RAIN** continuously monitors and never takes a break.

It provides you with comprehensive information 365 days a year, 24 hours a day. **NIVUS RAIN** not only generates a high level of data, but also a strong sense of security for all residents in the monitored area, because everyone has access to **NIVUS RAIN.** The public can receive personalised information on their local situation and react appropriately.
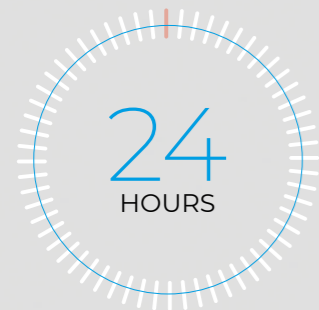
NIVUS RAIN alarms can be requested for user-defined areas within the monitoring zone.

Up to 60 minutes in advance!
For affected municipalities, this is an essential gain in time when planning the emergency services, but also an opportunity to offer people in endangered areas a real time advantage or a significant improvement in alarms for the first time.

24 HOURS

365 DAYS

The advantages of
NIVUS RAIN

NIVUS RAIN uses a new and innovative technology, supported by artificial intelligence, which makes it possible to predict heavy rainfall events for cities, municipalities and districts - reliable and resilient.

FOR EMERGENCY SERVICES
The advantages at a glance

Reliable warning for proactive actions / Alerting and optimised operational planning / Improved protection of human life and assets / Support for various scenarios / Avoidance of critical situations

NIVUS RAIN represents the latest generation of heavy rain alarm systems and was developed to support emergency services such as the fire brigade, police and technical support organisation in saving lives and protecting assets. This innovative technology, based on artificial intelligence, enables cities, municipalities and districts to reliably and resiliently predict heavy rainfall events - up to 60 minutes earlier than conventional systems. This gives **NIVUS RAIN** a unique positioning. Thanks to this advance warning time, all emergency services involved now have significantly improved opportunities to take protective measures in good time and get 'ahead of the situation'.

6 |

| 7

FOR MUNICIPALITIES
The advantages at a glance

Early warning and protection from heavy rain / High reliability through AI support / Street precise forecast / Cost reduction by damage prevention / Data-based follow-up measures for flood protection / Validation of hydrodynamic models / Documentation for insurances

FOR RESIDENTS, COMMERCIAL ENTERPRISES AND INDUSTRY
The advantages at a glance

Up to 60 minutes more warning time with AI / Early heavy rain alert / Improved safety awareness thanks to street-level visualisation / Earlier beginning of individual countermeasures / Reliable alarms

How **NIVUS RAIN** works

NIVUS RAIN consists of a network of heavy rain sensors and cloud-based software that analyses the measured data in real time.

Precise forecasts are generated in the cloud for individually defined areas and points in a monitoring area. Based on these forecasts, warnings are then sent to the target groups. Depending on the expansion level, **NIVUS RAIN** allows street precise early warnings to be generated up to 60 minutes before an event occurs. **NIVUS RAIN** also offers modules for monitoring bodies of water and sewer networks to monitor the effects of heavy rainfall here too.

Users are informed immediately about upcoming events. Emergency services especially receive heavy rain alerts and information on existing alarm and information systems. Industrial companies can also receive notifications in this way. Water company representatives and the general public are informed in the event of a heavy rain alarm via a responsive and mobile-optimised website for their city and, in future, POI-related notifications by text message, phone call and email.

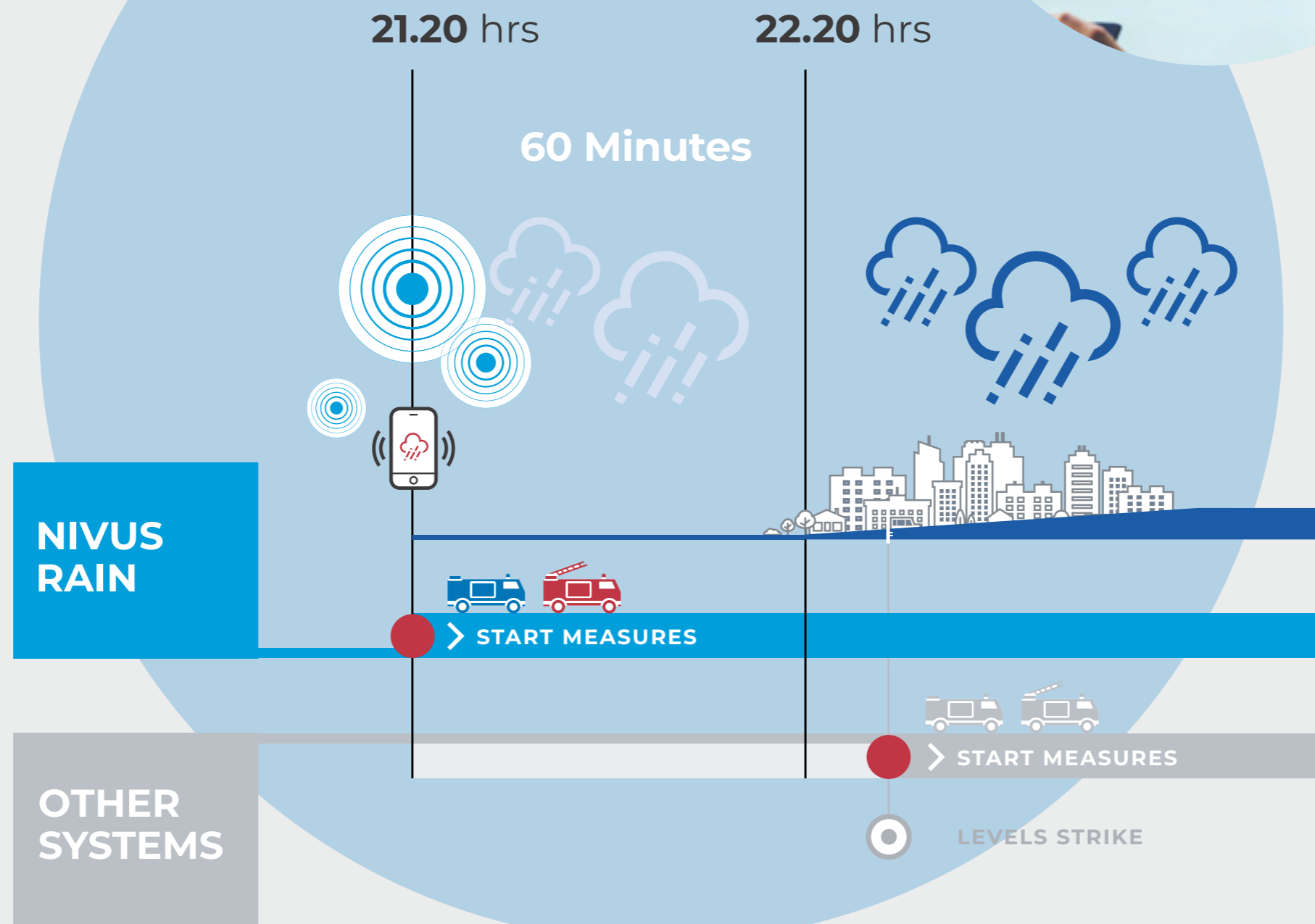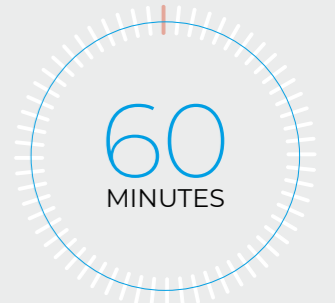## FUNCTIONALITY OF **NIVUS RAIN**
Scan the QR code!

On our website you will find an informative animation, which illustrates and explains the time sequences of the data streams.
www.nivus-rain.com/en/function/

What makes **NIVUS RAIN** different from other systems?

Heavy rain is a complex environmental phenomenon that is influenced by many variable and continually changing factors.

NIVUS RAIN uses advanced artificial intelligence technologies and a sensor-based system to meet this challenge. Our system is based on a patented AI technology for recognising and forecasting heavy rain cells. The data base is a sensor measurement network that can predict when and where heavy rain will occur up to 60 minutes in advance. **NIVUS RAIN** is not only the first real heavy rain early warning system, but also differs significantly from systems that only measure precipitation at individual points.

21.20 hrs

22.20 hrs

60 Minutes

60 MINUTES

NIVUS RAIN

> START MEASURES

OTHER SYSTEMS

> START MEASURES

LEVELS STRIKE

NIVUS RAIN
user interface

We have paid particular attention to the design of the user interface. After all, **NIVUS RAIN** should not only function perfectly. It should also be perfect and intuitive to use.

This means that it can be used by the emergency services and all affected residents instantly! This was very important to us during development. The handling is based on established and proven user experiences.
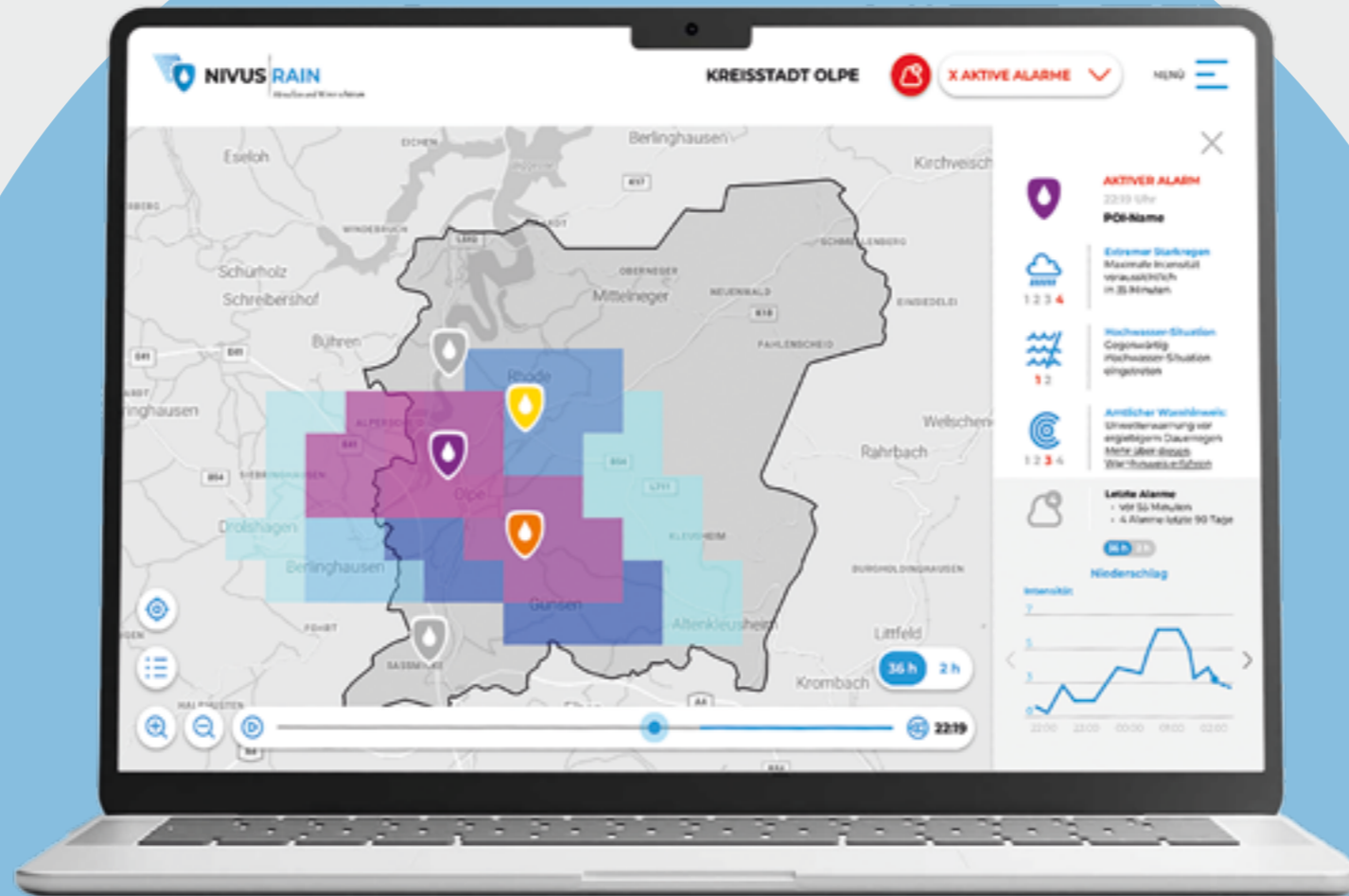
For all professional users (fire brigade, police etc.), the alarm information are connected to local alarm systems. Alternatively, we have also created a separate log-in area that provides even more detailed information on the danger situation. Of course, the application is fully responsive so that it is optimised for all media (screen, tablet and smartphone).
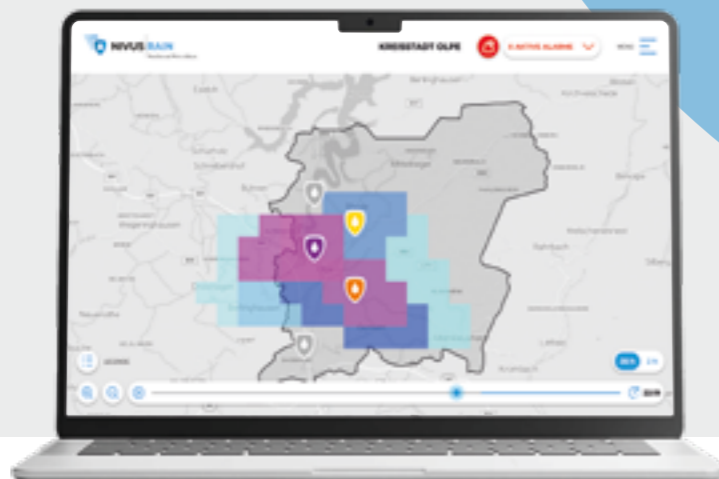
Intuitive user interface

Precise analysis of active alarms
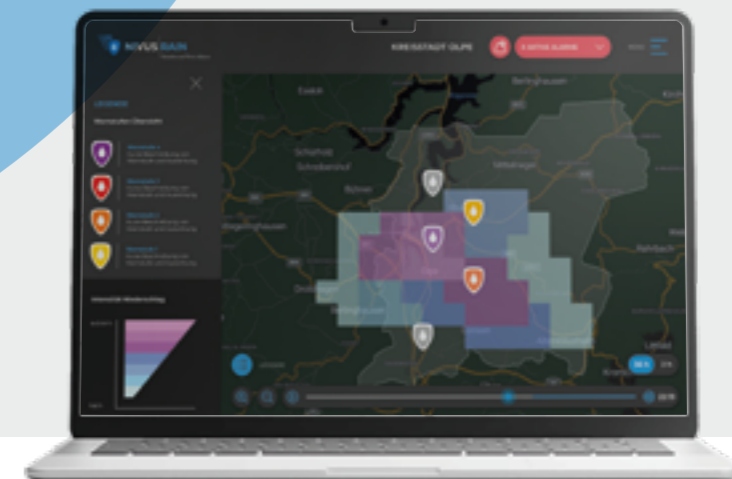
Warning level overview in night mode

Installation of
NIVUS RAIN

NIVUS takes care of the entire process from pre-planning and sensor installation to the operation of **NIVUS RAIN**.

Our well-organised service includes a comprehensive site analysis and a detailed analysis of existing relevant data and communication infrastructure. Based on these analyses, we develop a detailed plan for the implementation of the system. We also take care of setting up the data streams to ensure that you always have access to the relevant information.

Self-sufficient sensors for NIVUS RAIN
The **NIVUS RAIN** system works completely independently of external energy sources because the sensors, transmission unit and solar panel are combined in a pre-assembled device. Technically skilled employees can easily install this device on lampposts or street posts after a short training session, without the need for any special qualifications.
The system is activated on site. It is operated from the online control software. Installation and setup is completed in a very short time. A continuous energy supply is guaranteed by an internal battery and solar panel.

4 STEPS – From planning to implementation of **NIVUS RAIN**

STEP 1 / EXACT SITE ANALYSIS

The local authority has already developed hazard maps for heavy rainfall and carried out a detailed risk analysis. The first step is to optimise the **NIVUS RAIN** system based on this data. This includes a site analysis with the topographical conditions, past events and potential drainage patterns. The positioning of the sensors is determined on this basis.

STEP 2 / DATA INFRASTRUCTURE ANALYSIS

The next step is to review and evaluate existing measurement data and communication infrastructure in order to evaluate their use and suitability for **NIVUS RAIN**. The data availability and quality of existing sensors and the possibilities of connecting them to the local LoRaWAN network or public LPWAN structures will be checked.

STEP 3 / OPERATIONAL PLANNING

At the end of the planning phase, we start with the operational planning. That includes the actual installation of the sensors and setting up the NIVUS RAIN system for the municipality. The user interfaces are also defined at this stage. In addition, the supporting measures are discussed to ensure that all involved and affected people are informed about the benefits and possibilities of the **NIVUS RAIN** system.

STEP 4 / COMMISIONING OF NIVUS RAIN

The sensors are installed by the NIVUS team (e.g. on lampposts) and commissioned in cooperation with the local authorities. A project manager is responsible for coordinating all activities from the beginning up to the end. After the work has been completed, the central user groups receive instructions on the use of **NIVUS RAIN**. If neighbouring municipalities decide to use **NIVUS RAIN** at a later date, it is very easy to connect the monitoring areas In this way, municipalities can benefit from each other and maximise pre warning times.

Who is operating **NIVUS RAIN**?

NIVUS RAIN is a digital information service operated by **NIVUS** for local authorities.

The system comprises a measuring network of heavy rain sensors to generate early warnings, as well as water level sensors for monitoring and special cloud systems for real-time processing and provision of data for users.

One major advantage is the cross-community use of the measurement data, which maximizes the benefits for all involved and reduces costs at the same time.

This is because NIVUS RAIN is so simple and intuitive to use that no experts need to be trained.

The technology for heavy rain detection and forecasting was developed and patented by our technology partner Okeanos Smart Data Solutions GmbH as part of a national funded research project (BMVi).

NIVUS RAIN uses this technology exclusively. This is the result of close and partnership cooperation between NIVUS and Okeanos.

NIVUS – We are proven specialists and have over 50 years of experience in measurement technology with water.

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That all sounds very exciting?

Would you like to find out more about NIVUS RAIN?

www.nivus-rain.com

NIVUS|RAIN

Protecting people and values.