

# How the Paradoxical Solution Works

Andrea Gillhuber

What are the advantages of a location-based mobile HMI? Stefan Niermann, Head of Business Development at Inosoft, explains why the paradox makes sense.

## Why should a mobile HMI be location-bound again?

This sounds paradoxical—but upon closer inspection, it makes a lot of sense. On larger machines or within plants, many tasks must be performed at various locations, and support from an HMI is often helpful or even necessary. Instead of installing fixed panels everywhere, these tasks can be handled more effectively and economically with a mobile HMI. This could be run on a portable industrial panel or even on a standard smartphone. Once at the location, the user navigates to HMI views that contain the relevant information and controls. It is essential that the path to the correct screen page is straightforward and unmistakable: navigating through complex menus is error-prone, time-consuming, and therefore unsuitable. Additionally, it must be ensured that no action is triggered in a part of the machine that is not directly visible. Everything points to binding the dedicated part of the mobile HMI to the relevant location. So, a location-bound, mobile HMI...

## How exactly are HMI views assigned to specific locations?

Tokens are placed at the locations, allowing the HMI to make the association. These could be, for example, QR codes. NFC tags or Bluetooth beacons are alternatives. These tokens are configured in the HMI with a defined location, thus linking them to the location-specific HMI views. Additionally, detecting the token activates a so-called Location ID, which can be tied to the enabling of control elements.

## What challenges exist in implementing an HMI solution with location-based operating rights?

The primary challenge is: Nothing should be operated that cannot be seen! The more complex the HMI, the harder it is to adhere to this rule. One could create large screens with all content, where only the actions allowed at the location are authorized. However, this approach is complex and error-prone. Our approach, therefore, is to create a unique, compact HMI view for each location. This approach is also



Stefan Niermann, Head of Business Development at Inosoft.

significantly more practical for usability, as mobile HMIs generally have a much smaller screen size.

## How does VisiWin protect against unauthorized or unintended interference with the system control (through location-based access control)?

Access to location-based views should only be possible through tokens, not

through manual navigation. This alone achieves a lot in terms of security without the need for assigning special rights manually. Additionally, we use so-called Location IDs, which assign control elements to a specific location within the HMI. These become active upon detecting the token and unlock the linked areas of the HMI views.

**Hall 7, Booth 481**