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**A uniform HMI
improves the machine
operator experience.**

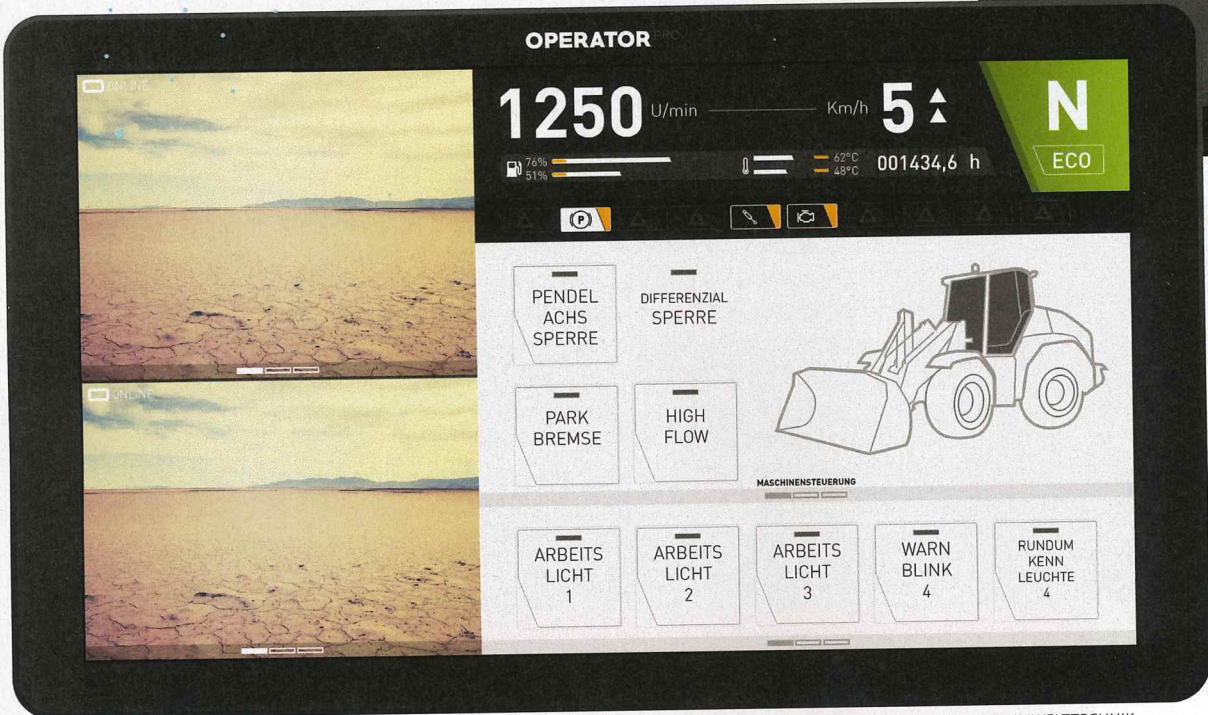
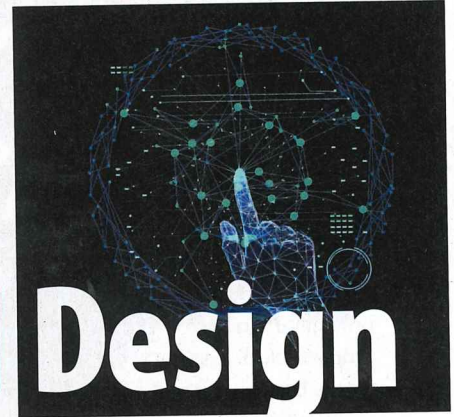
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A Standardized Approach to HMI Design

Industry members come together to develop more uniform human machine interfaces for an improved operator experience.

by Sara Jensen

Earlier this year, **Fritzmeier** CABS announced its involvement with the HMI Cluster—a group formed to create a uniform standard for human machine interface (HMI) designs. Because the HMI can vary from machine to machine, the group feels having a uniform design would aid operator training which can be costly and time consuming. With the ability to find skilled labor in the construction and



FRITZMEIER UMWELTECHNIK

ABOVE: The basic architecture and unification of symbolism is the HMI Cluster's focus for creating a uniform design.

LEFT: Creating a uniform HMI will help to reduce operating training time and costs.

other heavy-duty equipment industries becoming more difficult, making the training process easier would be beneficial for customers.

"We have had discussions with the construction industry, which demands standardization in displays, since the most diverse machines also contain the most diverse approaches to displays," says Alexandra Herrmann, Product and Marketing Manager at Fritzmeier Systems GmbH.

She says this, coupled with the increasing shortage of skilled workers, prompted Fritzmeier to found the HMI Cluster together with Leonard Weiss, a Germany-based construction company. The companies are also partnering

ogy Department of Leonard Weiss, in the press release announcing the HMI Cluster's initiative ([learn more, 21066238](#)).

However, Herrmann notes this will be done without taking away individual OEMs' branding or competitive advantage.

She says the group is still at the


beginning stages of the project and working out how exactly it will create uniform homogenous designs. Professor Jens Krzywinski, Technical Chair of Design of the Technical University of Dresden, has been brought in to aid with the project. Krzywinski has worked on the Genius CAB and Smart CAB projects, as well as Liebherr's




with the construction division of Germany's heavy equipment association, VDMA, as well as HDB.

Harmonizing the operator interface


To create a more uniform standard for HMI, Herrmann says the basic architecture and unification of symbolism is the focus. "This starts with the use of the same symbols per operating group, continues with the positioning of the operating groups and extends to the redundant control of safety functions," explained Ralf Lüddemann, Commercial Manager of the Technol-





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OPERATOR ENVIRONMENT: HMI CLUSTER

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new Intuitive User Interface (INTUSI) and will bring expertise from those programs to the HMI Cluster.

On the Liebherr INTUSI, different function categories are divided into widgets according to theme and situation, a bit like operating a smartphone, to create a safer and more comfortable operator experience

INTUSI uses widgets based on theme and situation to organize machine function categories.

(learn more, [21080674](#)).

Herrmann says that in many cases, the HMI for machine control is not intuitive and can be different from what operators may be used to which can increase the risk



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of errors. "The complexity of machine operation is constantly increasing and in many cases machines are operated by different people," she says, further adding to the need for a more harmonized way of developing the operator interface.

Because HMI designs are OEM driven, there has not been an effort to coordinate or synchronize this aspect of the machine design between manufacturers. "Of course, the requirements of the [various] machines are very different, leading to a high training period, danger of confusion and operating requirements for the driver with many different symbols for the same functions," explains Herrmann. "We therefore see the standardization of the basic architecture as a great benefit for the user."

Some OEMs have taken it upon themselves to standardize the operator interface within their own machine designs. AGCO's Fendt brand, for instance, uses the same color coding for operator controls in all of its machines. Buttons and switches for transmission functions may all be orange and those for the hydraulics all blue. According to the company, colors are universal so issues with language barriers can be eliminated. This also makes moving from one machine to the next easier for operators as they already know what buttons or switches control what functions, reducing time spent learning how to operate the equipment.

While the construction industry is currently the area of focus for the HMI Cluster, there have been discussions with other trade organizations about the benefits of developing standardized HMI. The group is also looking to have other manufacturers, including OEMs, and industry organizations join the cluster to help with its efforts. |

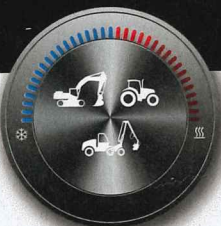


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