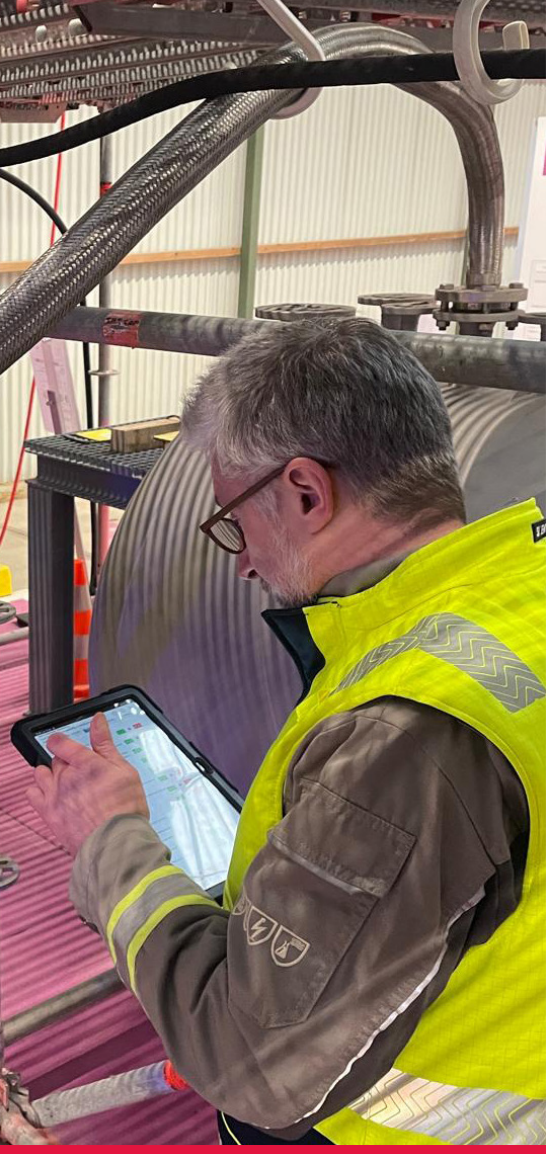


SAFETY STARTS IN SIMULATION: HOW EVONIK AND SKILLSUPP BRIDGE THE GAP BETWEEN TRAINING AND REAL-LIFE PERFORMANCE

When a patient's life is on the line, every second and every action counts. The same principle applies in the chemical industry, where a small deviation from protocol can have life-threatening consequences. This parallel forms the foundation of an unexpected yet powerful collaboration between healthcare education and heavy industry. During this year's Asset Performance Conference, Werner Van Acker (Technical Governance Manager at Evonik), Geert Van de Weyer, and dr. Deborah Hilderson (researchers at Karel de Grote University College) will present their joint project: SkillsUpp, a simulation-based training and evaluation method that is reshaping safety culture at the chemical giant.

From Hospital Wards to Chemical Plants

Geert Van de Weyer and Deborah Hilderson have their roots in nursing education, where simulation training and structured skills evaluation have long been established practice. In their work, they noticed discrepancies in how students were evaluated based on subjective interpretation of errors. By developing a matrix-based digital assessment tool, they eliminated evaluator bias. This tool, initially designed for nursing education, caught the attention of the industrial world.

Evonik, operating in the port of Antwerp, became a pilot partner. "We wondered: could the same approach used to evaluate a nursing student inserting an IV line be applied to technicians conducting high-risk procedures like flange assembly in our facilities?" says Van Acker. The answer turned out to be a resounding yes.

Piloting Simulation in the Safety Street

Together, the team launched a pilot project at Evonik's Safety Street—a replica of a plant environment used for training without any real hazards. The simulation scenario focused on replacing a valve and included key procedural steps such as work order verification, LMRA, red/green labeling, flange mounting, and reporting.

Contractors were observed by the safety coordinators of Evonik, performing tasks, and their actions were scored via the SkillsUpp app based on a pre-defined matrix. The results were surprising: discrepancies emerged between perceived

PEER FEEDBACK AS A LEARNING ACCELERATOR

An unexpected benefit of the SkillsUpp implementation at Evonik was the growing use of peer feedback. Safety coordinators and trainees began observing each other's performances, offering suggestions and insights based on shared experience. "It's still early days," Van Acker notes, "but we see that peer evaluations help embed standards and build mutual accountability." The method encourages teams to collectively raise their level of execution by turning evaluation into a shared responsibility rather than a top-down directive.

Dr. Hilderson adds: "When feedback comes from a peer rather than a supervisor, it's often perceived as more collaborative. That dynamic supports a culture of continuous improvement."

– WERNER VAN ACKER
Technical Governance Manager at Evonik
–GEERT VAN DE WEYER & dr. DEBORAH HILDERSON
Researchers at Karel de Grote University College

performance and actual results. "One evaluator thought a contractor deserved a solid score, around 14 out of 20," Van Acker recalls. "But when we reviewed the detailed scoring in the SkillsUpp dashboard, it became clear that several critical mistakes had been overlooked. The system flagged these correctly, showing us how much nuance can be lost in manual evaluation."

Objective, Actionable Feedback

The tool doesn't just deliver a score. It provides a detailed breakdown of which actions were correct, which were faulty, and their weight in the overall evaluation. "This gives us something we never had before: real-time, objective feedback," explains Van Acker. "Not only at the individual level, but also across teams and departments. We can see patterns, such as language barriers impacting instruction comprehension, and adjust our training focus accordingly."

Geert Van de Weyer elaborates: "This approach allows us to move from gut feeling to measurable indicators. Instead of arguing over how severe a mistake is, we have a framework that makes the conversation objective, constructive and forward-looking."

Boosting Safety Culture and Performance

For Evonik, this method represents more than just a better training tool. It fuels a shift toward a more open feedback culture. Simulations allow mistakes to be made and corrected in a controlled environment. "You can challenge unsafe habits without blame," says Hilderson. "It's not about detecting errors; it's about enabling improvement."

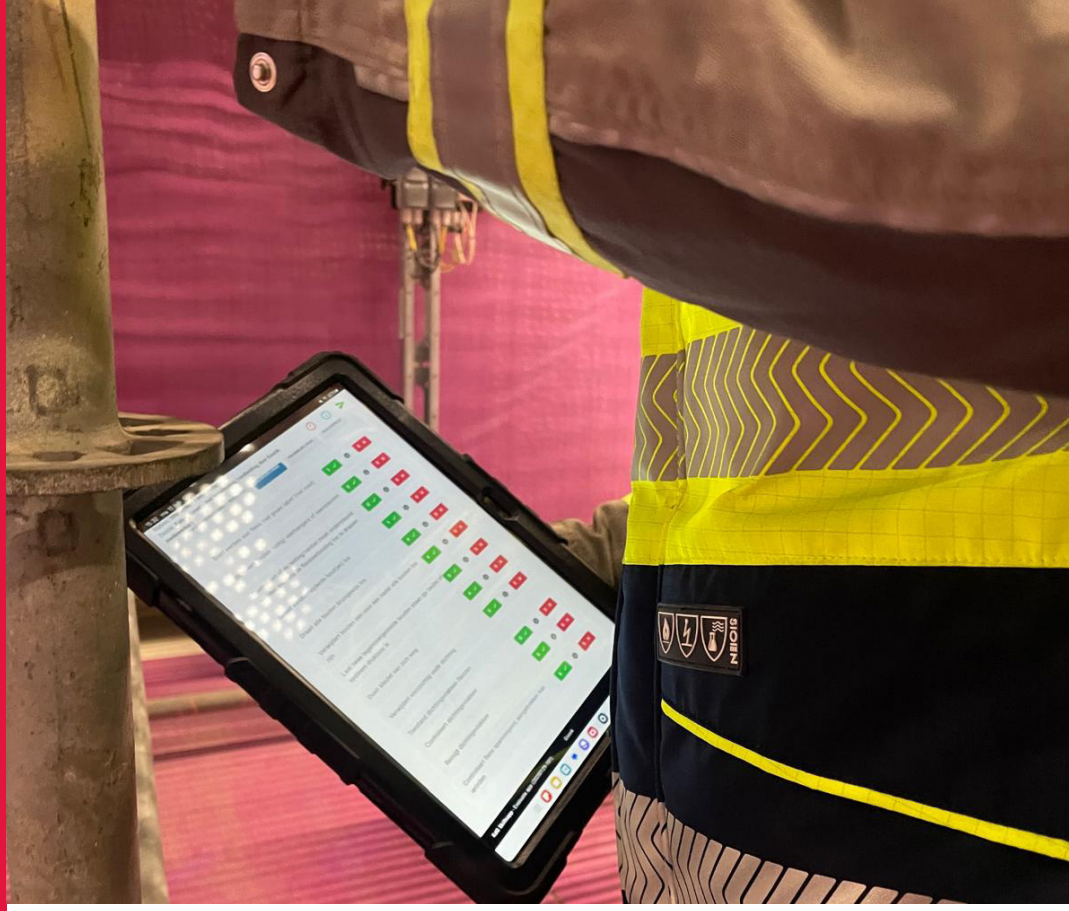
"That's the biggest shift we've seen," adds Van de Weyer. "We're not just training for compliance anymore, we're building competence and confidence." Dr. Hilderson agrees: "In many ways, simulation humanises the learning process. It lets people make mistakes without fear, and learn faster because of it. That's a cultural leap we're proud to support."

WHEN LANGUAGE BECOMES A SAFETY RISK

One insight that surprised the team was the impact of language comprehension on safety-critical procedures. "Many contractors indicated they understood Dutch, English, or German," Van Acker explains, "but during simulation, it became clear that important procedural nuances were often lost." The SkillsUpp tool's data visualisation helped make these issues visible. This has since prompted a reassessment of how instructions are communicated and validated. "It's not about language skills," says Hilderson, "it's about ensuring nothing vital gets lost in translation when safety is at stake."

Another notable observation during the pilot was how rarely additional safety instructions were fully read and understood—despite being essential. This insight led to a refinement of both the simulation content and how critical instructions are delivered.

With thanks to the authors: Geert Van de Weyer, dr. Deborah Hilderson and Werner Van Acker



The impact is already visible. "Colleagues are initiating ideas themselves," says Van de Weyer. "They're asking: how can we use this method in real-life operations? That's when you know you're building something sustainable."

Scaling Up and Looking Ahead

Encouraged by the results, SkillsUpp is now seeking to scale further and develop modular building blocks so companies can configure their own evaluation matrices and feedback systems.
SkillsUpp supports companies in transitioning from paper-based assessments to traceable, digital evaluations. "It enables faster corrective action when deviations are found, supports transparent audits, and helps identify coaching needs at the individual level," says Hilderson.

Evonik is exploring its use in critical pre-job simulations for tasks such as rigging and EMR procedures. Future simulations could even be integrated into active plants to assess real-life performance.

"Ultimately, we want a system where every contractor has to meet a transparent baseline score to access high-risk zones," says Van Acker. "This isn't about policing—it's about making sure everyone is truly ready."

Join the Session at Asset Performance 2025

At the conference, Van Acker, Van de Weyer, and Hilderson will present real cases, dashboard visuals, and concrete results. Their message is clear: technical skills alone are not enough. Real safety comes from integrating knowledge, execution, and effective communication.

"We want maintenance managers, reliability engineers, and digitalisation leads to realise that the way we evaluate readiness can be transformed," Van Acker concludes. "Simulation is not a rehearsal. It's where performance begins."

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