Room to move in the digital workplace

Technological trends are reshaping the workplace. What this will look like in the future isn’t yet clear, but at Volkswagen the transformation has already begun. A snapshot.
As so often happens, the future begins with a problem. Andres Davila and his team are standing around a lightweight construction robot. It doesn’t look at all like a robot, but more like a giant silver arm with bulky orange joints. The special feature of this steel limb is that it yields if a human touches it. If someone pushes it hard, which can happen during work on the line, the robot switches off completely – a safety feature designed to prevent injury.

Experts talk about the machine’s “sensitivity.” By contrast, its heavy steel colleagues, towering behind giant protective screens, go doggedly about their work. They aren’t as considerate when someone gets in their way.

Davila is a production planner at Volkswagen’s commercial vehicle plant in Hanover. His job is to ensure that production runs efficiently and that staff are able to work in ergonomically ideal conditions. This morning he and his team are testing how fast and accurately the new lightweight construction robot can attach plastic clips to the interior paneling of a VW Transporter. When the software crashes and the machine freezes. A technician goes to the laptop and restarts the program.

Normally, a person attaches the several hundred plastic clips. If the robot could take over this job, it would relieve the employee of the monotonous task of clambering around inside the vehicle to align the paneling and push the clips into the walls – a job that strains the thumb and wrist.

It isn’t yet clear whether this type of robot will become a standard part of the assembly line. It isn’t just a question of demonstrating that the technology works – but
also of the willingness of employees to work so closely with the robot. “You can’t use a sledgehammer to get humans to collaborate with robots,” says Davila. “Ultimately, it’s our colleagues on the assembly line who are going to have to work with the robot in three shifts every day.”

**People are choosy**

Robots like the one in Hanover belong to a new generation. So far, there are only around 40 of them being used or tested throughout the Group. By contrast, VW has 40,000 conventional robots. The little lightweight construction robots are symbolic of the developments referred to by the term Industry 4.0. But this generation of robots is really just one possibility in a future when humans, machines and processes network and communicate in real time and, at the end of this virtual orchestration, turn out the exact product specified by the customer.

The usual reduction of the term Industry 4.0 to technological aspects is a problem because technology cannot exist without people. Unless people accept, appreciate and use it, any innovation will end up on the scrap heap.

So, despite increasing automation and digitalization, there will never be a production hall without people. This has been shown by research conducted in the area of workplace sociology. The way that companies embed and use technology in their organizations has nothing to do with whether they can, and everything to do with whether they want to do it. Innovations have to match the business strategy and satisfy internal concepts, staff job requirements and working conditions. Because there are so many variables, Industry 4.0 will change companies in very different ways.

**Shaping the unpredictable**

Dr. Nari Kahle agrees: “Buying and planning technology is the least of the tasks facing us. Getting people on board is a much bigger one.” Kahle (30) is an economist working for the General and Group Works Council. When she thinks of the future world of work, she can name lots of successful Works Council initiatives. These include pilot projects like the digital labs and campaigns to prepare the workforce for technological change. Recently, the Works Council and Volkswagen signed an agreement on mobile working. “It’s important for us to address the various needs of the workforce,” says Kahle. Knowledge work, in particular, will change dramatically over the coming years, she believes.

Artificial intelligence and automation will make everyday work much easier, and will also replace routine activities. Numerous new fields of activity will emerge in
their place,” says Kahle. Despite diligent preparation and prudent foresight, the future of work will therefore look very different for different occupations. The economist does see one common aspect, however: “We will only be able to manage the change and all the disruptions to our core business if we get the employees on board. And the Works Council is in a good position to help shape this transformation.”

Time for change

“Klaus” is positioned at Assembly Line II in Wolfsburg. He carefully feels his way to the bolt for the pendulum support beneath the engine block. Klaus cannot see. Sensors help him find his way, locate the bolt and tighten it. Klaus is another lightweight construction robot – and another experiment. But unlike his counterpart in Hanover, he has already left the laboratory. Klaus, currently being tested for series production, now awaits the verdict of his flesh-and-blood colleague.

To Ralph Linde, Industry 4.0 sounds “heavier” than it really is. “The term is a vehicle to express the upheaval that the world is going through,” he says. Linde is Head of the Volkswagen Group Academy, the umbrella organization for training and staff development within the Group. The Industry 4.0 transformation requires new skills. For instance, industrial electronic engineers will need a greater knowledge of computer science to be able to resolve glitches in Klaus and consorts and to program workflows. The capacity for abstract thought and the ability to solve problems quickly and independently are also becoming more important. However, Linde doesn’t believe in limiting Industry 4.0 to objective and logical or scientific skills: “The growing complexity increasingly calls for social skills.” These, of course, include the skills necessary for productive collaboration.

The agile ideas factory on the edge of town

The Wolfsburg industrial park, which feels a long way from the Volkswagen headquarters, is home to the Agile Center of Excellence (ACE). Agile project methods like Scrum and Kanban are seen in many places as an alternative new form of collaboration. The idea is to do things nimbly, quickly and with a high degree of self-organization – with the aim of achieving fast results through repetitive (iterative) processes and learning as much as possible along the way.

The agile team meetings take place here in the project room of the ACE at the Heinenkamp industrial park. Some participants have made themselves comfortable in beanbags or on upholstered stools, while others stand at bistro tables. The walls are covered with big
black display boards on which countless colorful Post-its have been stuck. This morning, Scrum Master Mirko Drobietz is going to make a “sprint change.” This means that the results of the two-week project phase (sprint) will be presented, and the objective of the next sprint decided on. The atmosphere is one of collaborative, relaxed concentration. When his colleagues get stuck on a tangential matter for too long, Scrum Master Drobietz shouts, “Focus!” and they quickly get back to the core issue. Once a topic has been successfully completed, everyone applauds and the team moves on to the next one.

Stefan Waschk and Jörn Schrader are driving the formation of agile high-performance teams in the Group. There may be a 20-year age difference between them, but they share the same perspective: agility, they say, is an attitude, not a method. It is a mindset to which certain values are attached, including mutual respect, open and equal communication, and the courage to try things out and learn from mistakes. Schrader: “It’s a culture. You move closer together. There isn’t just one individual up there making the decisions and believing he alone holds the key to all knowledge.” Waschk sees the diesel affair as a “huge opportunity” to focus on agile values. “Too often, we’re stuck in processes that are much too rigid, but trust that we have the perfect plan,” he says. “But customer requirements are changing at an ever faster rate. Only if we manage to quickly integrate these demands into our processes can we develop products that attract the customer.”

The limits of technology

In Hanover, the VW employees have amassed plenty of experience with their clip-fastening robot – and long since overcome the first setbacks. The robot still takes far too long to install the interior paneling. Further development will be necessary before it can be integrated in timed production-line work.

Davila recalls an international competition where robots had to open a door. Most of them fell over – the task was just too complex for them. Davila says: “Technology is meant to support humans, not replace them. Ultimately, every story is about humans.”
“We need to learn to understand the richness of diversity even better.”

Mr. Bussemer, what will the value of human work be in the future?
Probably much higher than today. While simple tasks are likely to be automated further, the share of creative knowledge work is increasing, even on the factory floor. Automation has limits. It’s capital-intensive and susceptible to faults. In addition, humans are much more flexible than machines. At Volkswagen we strive to keep a sense of balance when it comes to introducing technology. In areas where we can automate unergonomic workplaces, we’re pushing ahead with robots. But we aren’t going for automation in places where skilled workers are better suited to the task.

What are you currently working on?
At the moment, we’re thinking a lot about the attractiveness of manufacturing work in the future. Skilled production workers are still bound to strictly timed systems and shifts. A part-time shift-work model for working hours could make things much easier. We’re additionally designing a shift-planning app that employees can use to swap shifts with one another directly. We also need to create more opportunities for skilled workers to discuss issues in their peer communities. In general, we’re trying to improve our communications and connectivity within the company. Our internal Group Connect social media network is a good platform for this.

What cultural changes are needed at Volkswagen?
We have to break out of our divisional mindset, get in step with the customer, and focus hard on the value-creation process. And in many areas of the business we need to establish new, agile work cultures that facilitate faster innovation. This is particularly important in the new business segments. To do this, we need to gain an even better understanding of the richness of diversity.

The interviewer was Anette Frisch.