Forget the humanoids — it's industrial robots that will transform the world

TECHNOLOGY

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When writer Simon Ings compiled a massive compendium of 100 of the most interesting stories written about robots, he was struck by one thing they had in common: how wrong they all were.

In the over-caffeinated imaginations of science fiction writers and film makers, robots are almost always depicted as humanoid creations that can help, care for, have sex with and, when they are feeling particularly evil, terminate humans. But the reality is that humanoid robots remain lousy at interacting with us in the physical world in the varied and instinctive ways humans do.

What humanoid robots turn out to be good at is performing boring, functional, repetitive tasks such as regulating road traffic — which does not make such great entertainment. The first such robot, later known as a traffic light, was unveiled near the Houses of Parliament in London in 1868.

"We were expecting friends, companions, or at any rate pets," Ings wrote in his book *We, Robots*. "What we got was infrastructure."

That is worth thinking about as we become distracted by the emergence of more lifelike humanoid robots, which most closely resemble science fiction. Earlier this month, amid his customary hype, Elon Musk unveiled Tesla's first humanoid robot, called Optimus.

Standing at 173cm tall and weighing 73kg, the bipedal Optimus robot has been designed to mimic a human. But several roboticists were underwhelmed by its functionality, pointing out that in some respects it was less impressive than Honda's Asimo robot, which played football with then US president Barack Obama way back in 2014.

Similarly, the Ai-Da humanoid robot that gave evidence to a House of Lords committee earlier this month had to be rebooted halfway through the session to make sense (a trait, some may say, it shares with some recent British politicians).

Humanoid robots may generate media coverage and fire the public's imagination but they are never going to transform our economies — or even make a decent cup of tea. By contrast, last year saw an extraordinary surge in the number of industrial and service robots installed in factories, warehouses and workplaces around the world: this is certain to have a far bigger impact. In 2021, over 517,000 new industrial robots came on stream — 31 per cent more than in the year before — bringing the total global stock to a record 3.5mn.

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"The use of robotics and automation is growing at breathtaking speed," the International Federation of Robotics noted in its annual report this month. The most enthusiastic adopters of industrial robots are found in Asia, which accounted for 74 per cent of all deployments last year. China led the field with a 51 per cent increase followed by Japan, the US and South Korea.

The UK was a rare exception in recording a 7 per cent fall, leaving the country lagging far behind other advanced economies. While the German car industry has installed 1,500 robots per 10,000 employees, the comparable figure in Britain is just 824.

This global surge in robot adoption is being driven by several trends: the demand for more miniaturised and higher tech products, the disruption of global supply chains caused by the Covid pandemic and the resulting impetus to reshore manufacturing, together with widespread labour shortages.

"We are sitting on some kind of demographic time bomb in many countries. We do not have enough people who can do things by hand," says Patrick Schwarzkopf, an IFR executive board member.

Schwarzkopf says that the debate about the use of robots is evolving fast. Whereas some economists had previously warned that AI-enabled robots would kill off swaths of human jobs, policymakers now see an urgent need to accelerate automation to fill the gaps left in the workforce by retiring baby boomers.

Even at its current high rates of immigration, Germany's 45mn strong workforce is set to shrink by between 4mn and 6mn by 2035, he says.

That suggests our societies will have to become far more creative than most science fiction writers in imagining how we can best collaborate with robots. Rather than constantly benchmarking them against humans, we should exploit their complementary capabilities.

As the roboticist Cynthia Yeung has suggested, our obsession with humanoid robots replicating what humans can already do represents the assertion of form over function. Far better for function to inform form. Start with the human need and reverse engineer the robot to do what they do best.

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