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Risk Atlas

Axis Technology Risk Atlas

October 2026 Edition

WHEN ROBOTS WORK, THERE'S THE RISK

We have spent decades worrying about robots malfunctioning. The more interesting risks may emerge when they work exactly as intended.

"Perhaps the risk isn't that robots fail. It is what happens when we become comfortable relying on them."

A narrative on trust, normalization, dependency and the emerging risk landscape.

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> **“They’re getting us used to it.”**
> The machine was not welding a car, carrying a box or defusing a bomb. It was touching us.

THE IMAGE ON A VIENNA TRAM

What exactly are we becoming comfortable with?

Stacey and her daughter Megan were riding a tram in Vienna when Megan told her mother to watch the screen. There was no sound. No obvious company logo. No product being demonstrated and no explanation.

Just a robotic hand gently interacting with a human hand.

Their reaction was immediate. It felt as though somebody was trying to get them used to something.

As it turns out, it was not advertising. Vienna's 20 Seconds for Art initiative had placed silent films across Austria's public transit system under the theme Humans and the Intelligent Machine. One film explored the choreography of a human and robotic hand - touch, physical experience and the changing relationship between human and machine.

It would be unfair to say the artist's purpose was to desensitize the public. But Stacey and Megan's reaction may reveal something equally important.

Perhaps the word is not desensitization.
Perhaps it is normalization.

BEFORE ROBOTS ENTER OUR LIVES, THEY HAVE TO ENTER OUR IMAGINATION

Touch communicates almost nothing about productivity. It communicates reassurance, vulnerability, affection and trust. Research into human-robot interaction already shows the tension: robots need to be trusted if they are to work alongside us, yet people can also overtrust machines - attributing more competence, reliability or understanding than they actually possess.

For decades popular culture presented robots mainly as machines: factory arms, science-fiction androids, bomb-disposal units, Roombas. The imagery is changing. The robot holds grandma's hand. It helps a child attend school. It operates on a patient. It drives us home. It remembers our name.

That is more than technical progress. It is a renegotiation of the boundary between person and machine.

Sources: Vienna 20 Seconds for Art / KOER; Scientific Reports (2024) research on comforting touch; human-robot trust literature.

THE PSYCHOLOGY IS OLDER THAN THE TECHNOLOGY

We have crossed these boundaries before

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c. 370 BCE

Writing

Socrates worried that writing would weaken memory by allowing people to rely on knowledge stored outside themselves. The fear was overstated - but the pattern was real: technology first assists a human faculty, then changes how much we exercise it ourselves.

INDUSTRIAL AGE

The clock

Mechanical timekeeping did more than measure time. It eventually organized work, school, travel and social expectations. The technology became so ordinary that its authority disappeared into everyday behaviour. We do not say the clock controls us. We simply say: "I'm late."

1950S

Television

Researchers coined parasocial interaction for the strange intimacy viewers could feel with people who did not know they existed. Technology had begun to occupy emotional space, even before it could respond.

ELIZA DIDN'T UNDERSTAND US. WE CONFIDED IN IT ANYWAY.

MIT computer scientist Joseph Weizenbaum created ELIZA in the 1960s. It was extraordinarily primitive and did not understand the people speaking to it.

Yet users confided in it. Weizenbaum famously recalled his own secretary asking him to leave the room so she could continue her conversation privately - despite knowing how the program worked.

ELIZA had no face, no voice, no memory and no ability to touch anyone.

People supplied the emotion themselves.

Now give ELIZA a face, a warm voice, memory, movement - and a hand.

Source: Joseph Weizenbaum accounts; Smithsonian / Computer History Museum.

THE HISTORICAL PATTERN

Writing externalized memory. Calculators externalized arithmetic. GPS externalized navigation. AI is beginning to externalize elements of reasoning and judgement. Social robotics may externalize something far more personal: companionship.



THIS IS NO LONGER A THOUGHT EXPERIMENT

The robots are beginning to work

The important shift is not simply that the technology exists.
It is that people and organizations are beginning to organize real activities around it.

MANUFACTURING

BMW + Figure

A humanoid robot pilot at BMW handled tens of thousands of components and contributed to production of tens of thousands of vehicles. Humanoids are beginning to enter workplaces designed for people, rather than factories designed around fixed robots.

MEDICINE

Autonomous surgery

Johns Hopkins researchers demonstrated a surgical robot capable of completing a complex sequence of surgical tasks on experimental tissue, adapting to changed conditions and spoken instructions.

EDUCATION

AV1 in the classroom

Telepresence robots are already allowing children with prolonged illness to participate in lessons and maintain social contact with classmates when they cannot physically attend school.

COMPANIONSHIP

ElliQ at home

New York State has placed AI companions with hundreds of older adults to reduce loneliness and support wellbeing. The machines initiate interaction, remember preferences and become part of daily routine.

TRANSPORTATION

Waymo at scale

Fully autonomous rides are now occurring at commercial scale. When communities and consumers begin planning around autonomous transport, the exposure moves beyond a single vehicle to systemic reliance on a fleet and its software.

THE COMMON THREAD

Success changes the exposure

Manufacturing. Medicine. Education. Transportation. Companionship. Once people reorganize around a technology, its risk profile changes.

Sources: BMW Group; Johns Hopkins University; AV1 / No Isolation research; New York State Office for the Aging; Waymo / Alphabet.



SUCCESS CREATES RELIANCE

The legal question changes when people start depending on the machine

Consider an older person using a companion robot. At first she enjoys talking to it. Then she starts relying on its reminders. It knows her routine. She follows its suggestions. Her children become comfortable knowing it is there. Eventually everybody begins assuming certain things are being watched.

At some point the question stops being simply “Did the robot malfunction?” and becomes “What had people reasonably come to expect the robot to do?”

That transition matters. Successful technologies create expectations. Expectations create reliance. Sustained reliance can influence duties, standards of care and the severity of interruption when the service disappears.

WHAT HAPPENS WHEN YOUR ROBOTIC FRIEND FORGETS YOU?

Moxie was an AI companion robot designed for children. When its original manufacturer collapsed, parents suddenly had to explain that the robotic friend might simply stop working.

Moxie later returned under new ownership - but the old conversation data did not transfer.

Your friend disappeared. Your friend came back. But your friend did not remember you.

There was no bodily injury and no damaged property. Yet something had plainly been lost.

Sources: Embodied/Moxie coverage; current Moxie support informa

THE EMERGING RISK CHAIN

FAMILIARITY → ACCEPTANCE → TRUST → RELIANCE → DEPENDENCY → DUTY

Traditional robotic risk begins with malfunction. The emerging risk environment may increasingly begin with success.

WHEN RELIANCE BECOMES A RISK ISSUE

Service interruption:

A cloud outage may become more than a technology inconvenience if care, mobility or production has been reorganized around the system.

Standard of care:

If a robotic system consistently outperforms people in a defined task, could failure to use it - or failure to update it - eventually become part of a negligence argument?

Continuity:

Insolvency, subscription termination, data loss or a personality-changing software update can create a form of loss that conventional property concepts were never designed to describe.



THE ROBOT DOESN'T HAVE TO FAIL

Automation can scale the mistake perfectly

Traditional robotic loss scenarios are easy to imagine: a machine strikes someone, a sensor fails, an autonomous vehicle crashes.

Those risks remain. But robotics adds another possibility: the machine can perform exactly as intended and still create the loss.

Automation magnifies decisions. A person may make the same mistake several times. An automated system can potentially repeat a flawed instruction thousands of times with extraordinary consistency.

A construction robot can reproduce the same defect across hundreds of structures. A flawed fleet update can reach thousands of vehicles. A decision embedded in software can become an accumulation event rather than an isolated human error.

WHEN A PRODUCT BEHAVES AS THOUGH IT LIKES YOU BACK

Businesses have always tried to make products likeable. A social robot can do something different: it can behave as though it likes you back. It can remember your name, notice your mood, change its tone, ask about yesterday and perhaps one day reach out and touch your hand.

None of this requires consciousness. The machine does not have to care. We merely have to behave as though it might.

- Can emotional attachment be deliberately engineered?
- What duty arises when vulnerable users become dependent?
- Who owns years of intimate behavioural data?
- Can a trusted companion sell to the person who trusts it?
- What happens when the subscription ends?
- Can an update material change a robot's "personality"?
- What happens when the manufacturer disappears?
- At what point does helpful persuasion become manipulation?

The exposures begin to overlap: technology E&O, cyber, privacy, product liability, professional liability, consumer protection and potentially D&O; - all colliding with psychology.

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THE SORCERER'S APPRENTICE: 1797 AND STILL RELEVANT

In Goethe's 1797 poem, an apprentice becomes tired of carrying buckets of water and enchants a broom to automate the job.

It works.

Unfortunately, he knows how to start the automation but not how to stop it. The room floods. He chops the broom in two - creating two automated brooms carrying water.

The broom did not malfunction. It followed its instructions perfectly.

Goethe, The Sorcerer's Apprentice (1797).



CONCLUSION
THE RISK OF BECOMING ORDINARY

The biggest change may arrive when nobody notices the change anymore

History suggests successful technologies eventually disappear into everyday behaviour.

Writing changed what we needed to remember. The clock changed how we organized our days. Television changed who we could feel we knew. GPS changed how we navigate. AI is changing how much judgement we are prepared to delegate.

Robotics may take us somewhere subtly different.

Most previous technologies stood between people. The letter connected people. The telephone connected people. Television created intimacy with another person. Social media mediated relationships among people.

A social robot can become one of the participants in the relationship itself.

BACK TO VIENNA

Twenty silent seconds. A human hand. A robotic hand. Two people wondering what they were being encouraged to become comfortable with.

For decades we have worried about what happens when robots stop doing what they are supposed to do.

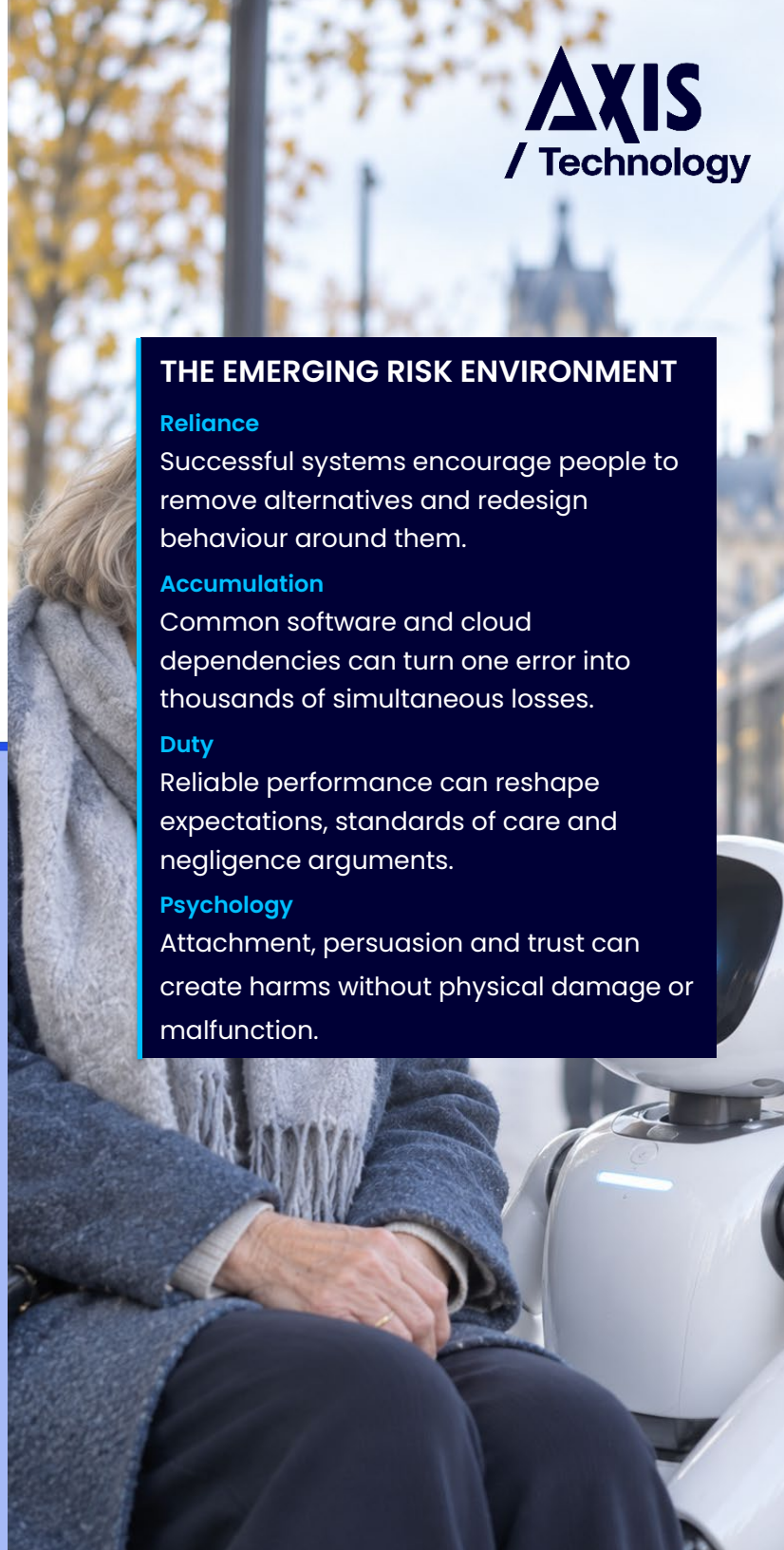
Perhaps we need to spend considerably more time thinking about what happens when they don't.

The most important risk posed by the robotic hand may not be that one day it hurts us.
It may be how quickly we become comfortable holding it.

Sources and further reading: Vienna 20 Seconds for Art / KOER; Scientific Reports on human-robot comforting touch; Joseph Weizenbaum / ELIZA histories; BMW Group humanoid pilot; Johns Hopkins autonomous surgery research; New York State Office for the Aging / ElliQ; Waymo / Alphabet; Moxie support materials.

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THE EMERGING RISK ENVIRONMENT

Reliance
Successful systems encourage people to remove alternatives and redesign behaviour around them.

Accumulation
Common software and cloud dependencies can turn one error into thousands of simultaneous losses.

Duty
Reliable performance can reshape expectations, standards of care and negligence arguments.

Psychology
Attachment, persuasion and trust can create harms without physical damage or malfunction.

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Thoughts? We'd love to hear your response here.

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