

ENGINEERING & ETHICS: RESPONSIBILITY BY DESIGN

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photo: adapt to conference

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DEVOPSDAYS
ZÜRICH

WHAT IS

ETHICS ?

ETHICS?

IN GENERAL

Evaluating the impact of our
decisions, based on
moral duties, virtues,
and **consequences**



MY PRAGMATIC VIEW

ETHICS?

Serve customers in a
reliable, durable
and **meaningful** way,
and cultivate a **good relationship**
with them.



DIGITAL ETHICS

ETHICS?

Integrating **digital technology** and **human values** in such a way that digital technology **advances** human values instead of damaging them.

ASIMOV'S 3 LAWS OF ROBOTICS

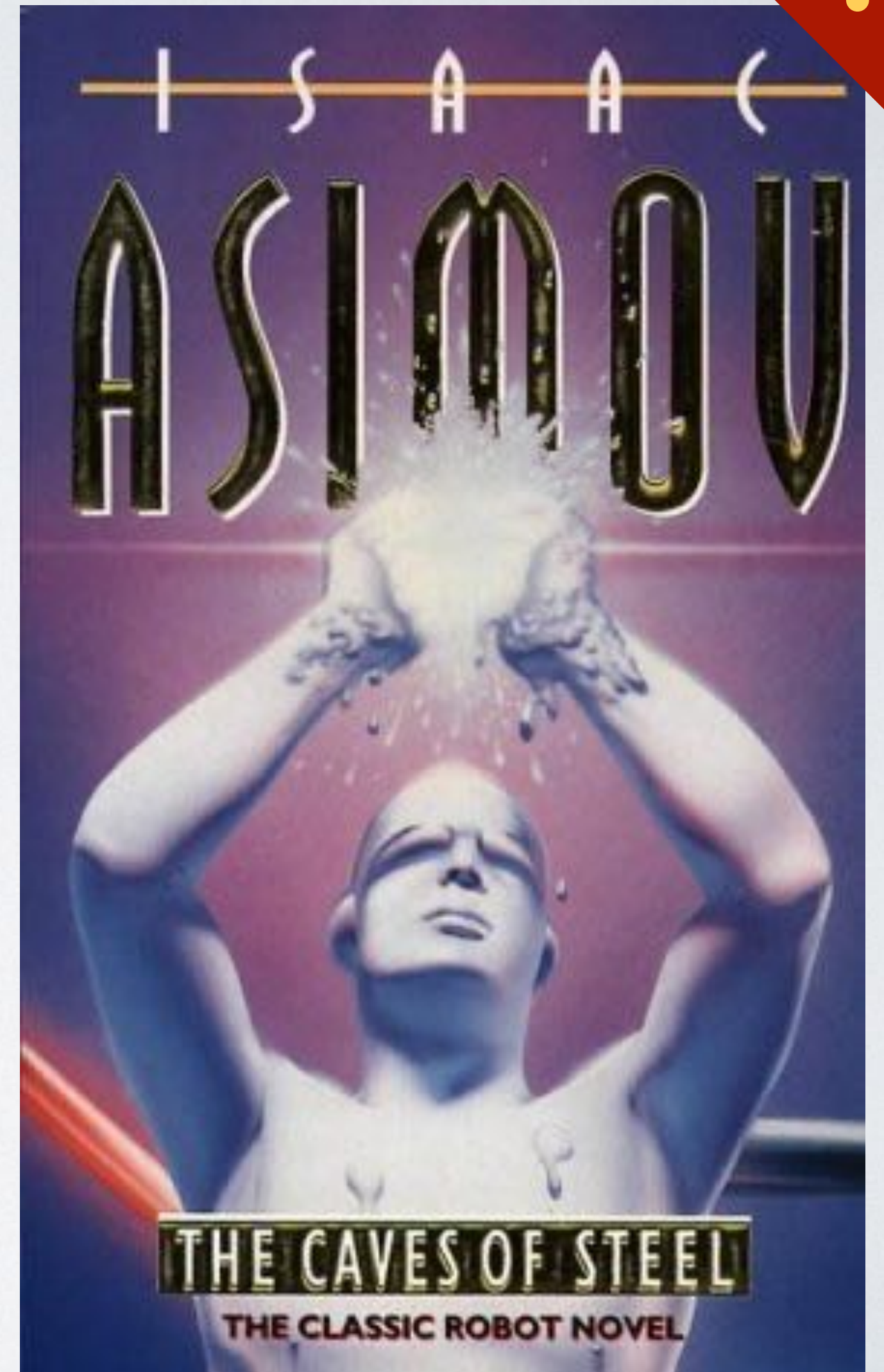
from 1942

ETHICS?

Dear robots:

- **Do not harm** humans
- **Obey** human orders
- **Protect yourself**

(my own shortened version)



ACM Code of Ethics and Professional Conduct

<https://www.acm.org/code-of-ethics>

Human well-being

No harm

High quality

Honest & trustworthy

Respect

Fairness

Privacy

ETHICS?

1. GENERAL ETHICAL PRINCIPLES.

A computing professional should...

1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.

This principle, which concerns the quality of life of all people, affirms an obligation of computing professionals, both individually and collectively, to use their skills for the benefit of society, its members, and the environment surrounding them. This obligation includes promoting fundamental human rights and protecting each individual's right to autonomy. An essential aim of computing professionals is to minimize negative consequences of computing, including threats to health, safety, personal security, and privacy. When the interests of multiple groups conflict, the needs of those less advantaged should be given increased attention and priority.

Computing professionals should consider whether the results of their efforts will respect diversity, will be used in socially responsible ways, will meet social needs, and will be broadly accessible. They are encouraged to actively contribute to society by engaging in pro bono or volunteer work that benefits the public good.

In addition to a safe social environment, human well-being requires a safe natural environment. Therefore, computing professionals should promote environmental sustainability both locally and globally.

1.2 Avoid harm.

In this document, "harm" means negative consequences, especially when those consequences are significant and unjust. Examples of harm include unjustified physical or mental injury, unjustified destruction or disclosure of information, and unjustified damage to property, reputation, and the environment. This list is not exhaustive.

Well-intended actions, including those that accomplish assigned duties, may lead to harm. When that harm is unintended, those responsible are obliged to undo or mitigate the harm as much as possible. Avoiding harm begins with careful consideration of potential impacts on all those affected by decisions. When harm is an intentional part of the system, those responsible are obligated to ensure that the harm is ethically justified. In either case, ensure that all harm is minimized.

To minimize the possibility of indirectly or unintentionally harming others, computing professionals should follow generally accepted best practices unless there is a compelling ethical reason to do otherwise. Additionally, the consequences of data aggregation and emergent properties of systems should be carefully analyzed. Those involved with pervasive or infrastructure systems should also consider Principle 3.7.

A computing professional has an additional obligation to report any signs of system risks that might result in harm. If leaders do not act to curtail or mitigate such risks, it may be necessary to "blow the whistle" to reduce potential harm. However, capricious or misguided reporting of risks can itself be harmful. Before reporting risks, a computing professional should carefully assess relevant aspects of the situation.

1.3 Be honest and trustworthy.

Honesty is an essential component of trustworthiness. A computing professional should be transparent and provide full disclosure of all pertinent system capabilities, limitations, and potential problems to the appropriate parties. Making deliberately false or misleading claims, fabricating or falsifying data, offering or accepting bribes, and other dishonest conduct are violations of the Code.

Computing professionals should be honest about their qualifications, and about any limitations in their competence to complete a task. Computing professionals should be forthright about any circumstances that might lead to either real or perceived conflicts of interest or otherwise tend to undermine the independence of their judgment. Furthermore, commitments should be honored.

Computing professionals should not misrepresent an organization's policies or procedures, and should not speak on behalf of an organization unless authorized to do so.

1.4 Be fair and take action not to discriminate.

The values of equality, tolerance, respect for others, and justice govern this principle. Fairness requires that even careful decision processes provide some avenue for redress of grievances.

Computing professionals should foster fair participation of all people, including those of underrepresented groups. Prejudicial discrimination on the basis of age, color, disability, ethnicity, family status, gender identity, labor union membership, military status, nationality, race, religion or belief, sex, sexual orientation, or any other inappropriate factor is an explicit violation of the Code. Harassment, including sexual harassment, bullying, and other abuses of power and authority, is a form of discrimination that, amongst other harms, limits fair access to the virtual and physical spaces where such harassment takes place.

ETHICS?

DOING THE RIGHT THING
BASED ON OUR MORAL PRINCIPLES

IT'S ABOUT

VALUES

VALUES VARY
AND EVOLVE....

VALUES



Create the future.

Creativity is in our DNA. We constantly look around the corner to see what is possible. But we don't wait for the future, we create it.

We are builders, makers, and inventors, driven by a deep empathy for our customers and users.

We are open-minded and celebrate new ideas. We have the courage to disrupt the market and ourselves through bold bets and ideas we turn into reality.

Own the outcome.

We think and operate like owners. We take initiative, have a bias toward action, and assume ownership for end results, not just our part.

We are reliable and have clear points of view. We're decisive and learn from our mistakes.

Raise the bar.

We aim high and we play to win. We relentlessly focus on execution, celebrate excellence and are intellectually honest about where we must do better.

We deliver both speed and quality by doing fewer things better. Our success is measured by the success of our customers and users.

Be genuine.

The ability to be yourself is core to who we are. We embrace and respect diversity.

We support and challenge each other by being honest and direct. We always act with sincerity, integrity and the highest of ethics.

We do this for our employees, partners, customers and communities.

SNCF Group's **purpose:**

VALUES

Provide everyone with the
freedom to move, by
connecting territories and
people in a **safe, solidaristic,**
and **sustainable** manner.

<https://www.groupe-sncf.com/fr/groupe/raison-etre>

BAD PEOPLE INC.

company values

VALUES

Get in, get rich, get out!

Customers are stupid!

Laws? Really?



STORY

Cutting things? Why?

Values

MUST

be documented

Adobe
Company Values

Create the future.
Creativity is in our DNA. We constantly look around the corner to see what is possible. But we don't wait for the future, we create it.
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Own the outcome.
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We are reliable and have deep points of view. We're decisive and learn from our mistakes.

Raise the bar.
We aim high and work to win. We relentlessly focus on execution, deliberate execution and are relentlessly honest about where we need to better.
We deliver both speed and quality by doing fewer things better. Our success is measured by the success of our customers and users.

Be genuine.
The ability to be yourself is core to who we are. We embrace and respect diversity.
We support and challenge each other by being honest and direct. We stop at nothing with honesty, integrity and the highest of ethics.
We do this for our employees, partners, customers and communities.

<https://blog.adobe.com/en/publish/2023/03/07/evolving-adobes-values-culture>

SNCF GROUPE

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Provide everyone with the **freedom to move**, by **connecting territories** and people in a **safe, solidaristic,** and **sustainable** manner.

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BAD PEOPLE INC.
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Laws? Really?

Photo: David Turdakov

ARE WE CREATING

DANGEROUS

THINGS?

Therac 25 radiation therapy, 1985

DANGER?

Full software control, no more hardware guardrails!
...what could go wrong?

DANGER?

Powerful, very useful, very dangerous !

DANGER?

« smart » phones...

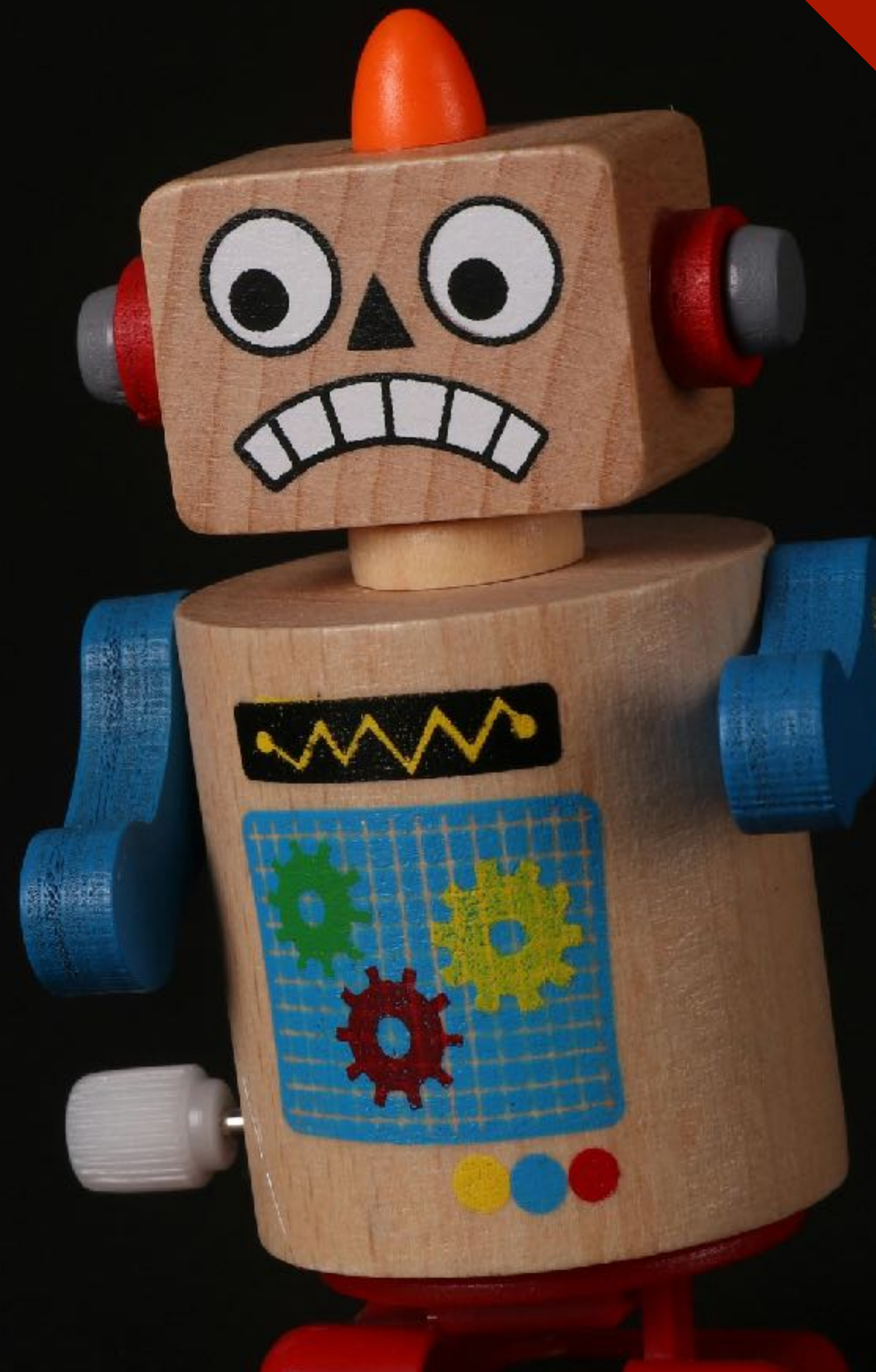
DANGER?

 **Euria**



What do people mean when they say "choose the nuclear option" ?

- When people say "choose the nuclear option," they are using a metaphor to describe taking the most extreme, drastic, or destructive action available in a given situation.



See « Claude's Constitution », Anthropic

SO, WE

NEED ETHICS

BASED ON

SHARED VALUES

IT'S GOING

FAST

photo: Ono Kosuki



Change is not new,
But it's **accelerating!**

STORY



1947..

photo: Mandiri Abadi



1993!

WE NEED TO GET THE

FUNDAMENTALS

RIGHT



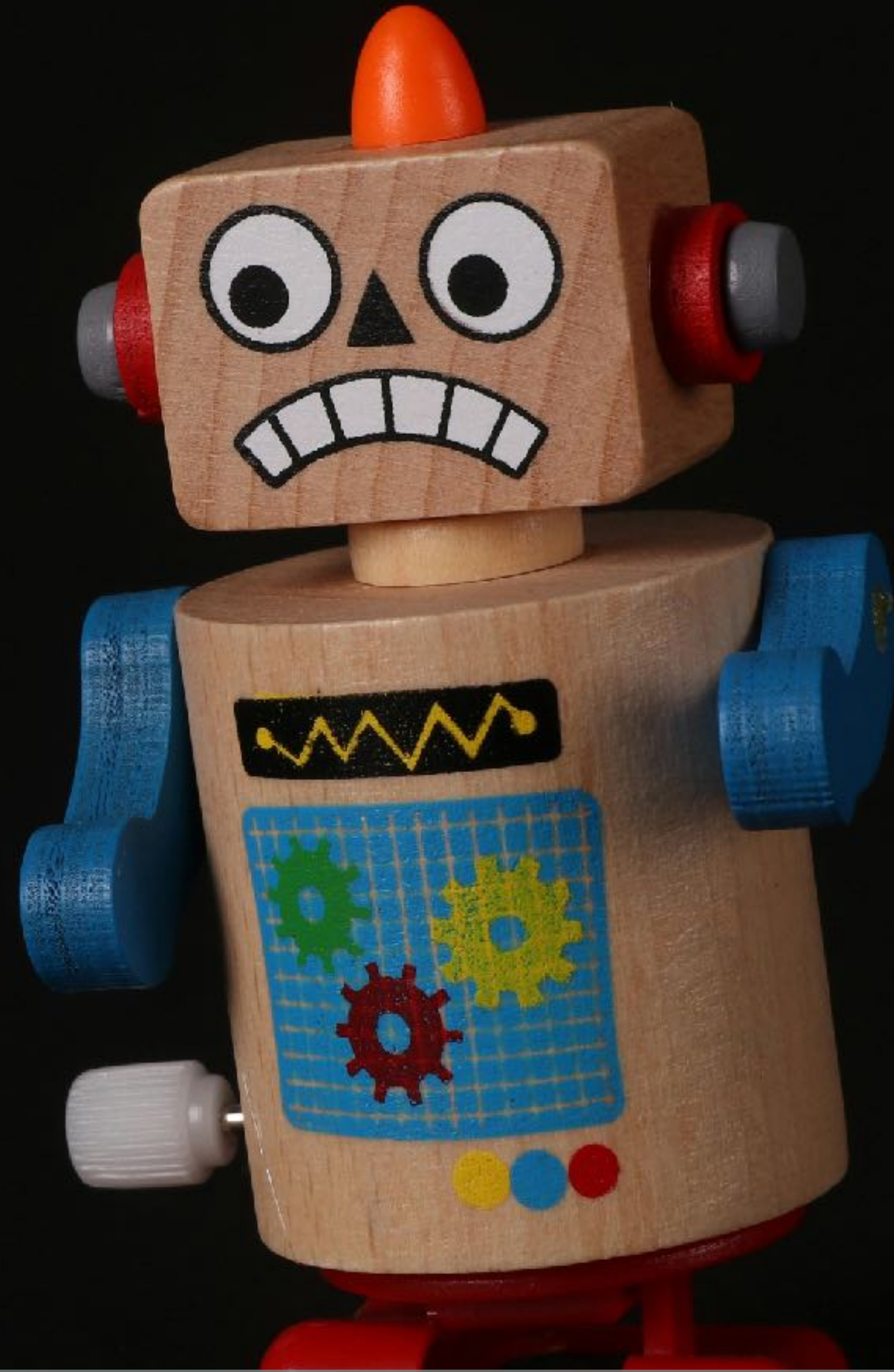
Fundamentals make the difference

📁 **Euria**



What do people mean when they say "choose the nuclear option" ?

- When people say "choose the nuclear option," they are using a metaphor to describe taking the most extreme, drastic, or destructive action available in a given situation.



Fundamentals make the difference

A FEW

EXAMPLES

infomaniak

D4 DATACENTER

EXAMPLES



100% energy recovered to heat buildings.
Can heat **6,000 Minergie-A** households
<https://d4project.org/>

Diagram: d4project.org

STORY

Too honest to be
invited to sales talks?



EXAMPLES

« If I died and had all this wealth and yachts and all this stuff, would I be as happy as when I laugh? »

<https://www.cnbc.com/2018/02/02/apple-co-founder-steve-wozniaks-simple-formula-for-happiness.html>

DAY CQ5 RELEASE

CIRCA 2009

STORY





Sun Microsystems

Enterprise JavaBeans™ Specification, Version 2.0

This is the specification of the Enterprise JavaBeans™ architecture based distributed business applications. Applications written once, and then deployed on any server platform that supports the architecture are scalable, transactional, and multi-user secure.

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1.1 Target audience
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3.1.4 EJB Container
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3.4 Stateful Session Objects

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3.6 Message-Driven Objects

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3.8 Naming

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3.22 Remote

3.23 Remote

3.24 Remote

Enterprise Java Beans 2.0, 2001

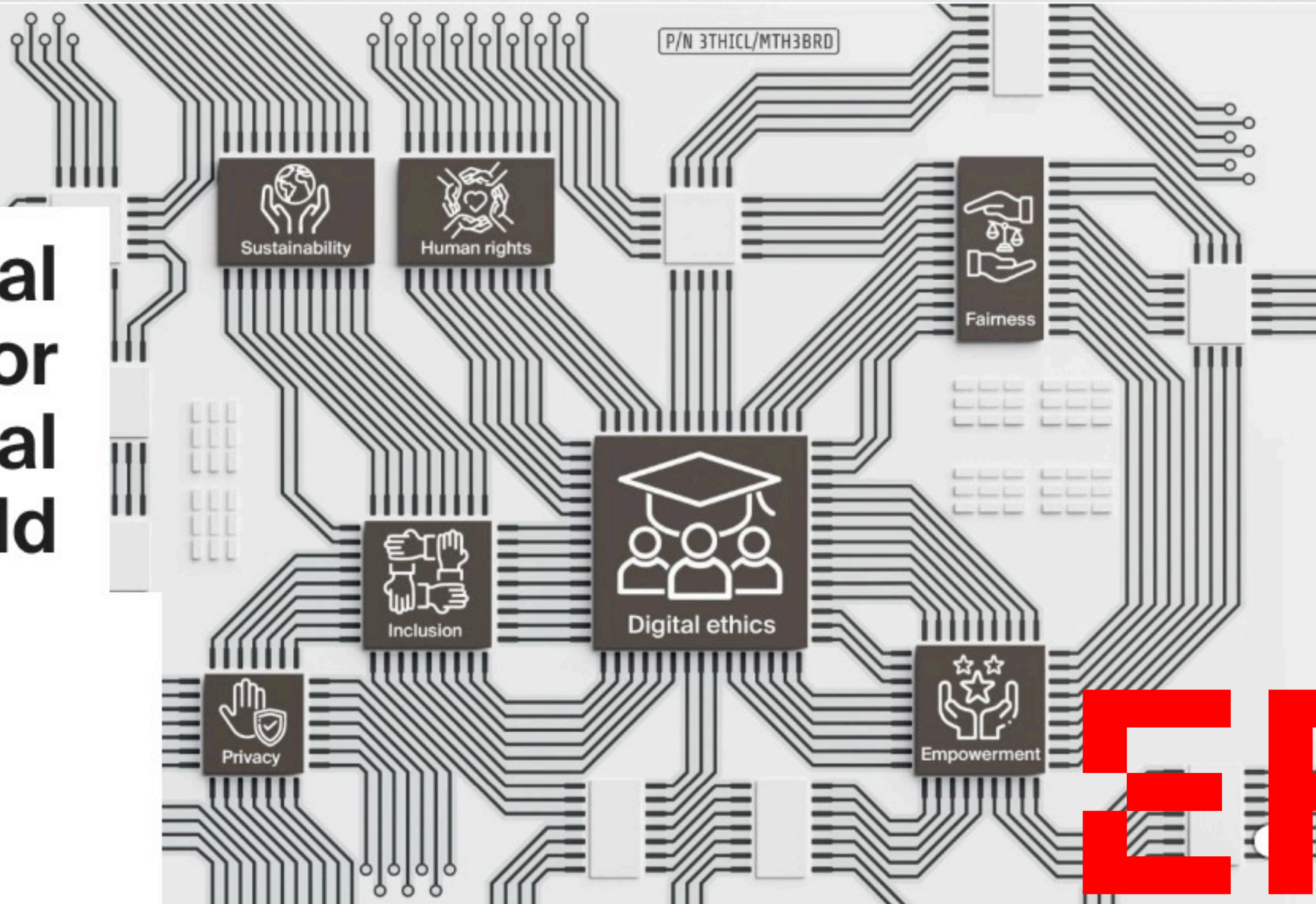
Table of contents: 20 pages
Spec: 572 pages

STORY

ETHICAL

BLINDNESS

**Ethical
skills for
the digital
world**



EPFL

DIGITAL ETHICS CANVAS

<https://www.epfl.ch/education/educational-initiatives/cede/open-and-accessible-education/digital-ethics/>

ETHICS-BY-DESIGN CANVAS

Ethical Debt

Ethical Blindness

Ethical Lenses

Risks and Mitigation

Fairness & Accessibility

Ethics-by-Design Canvas: A Visual Inquiry Tool to Reduce Ethical Blindness in Digital Innovation Projects

Completed Research Paper

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DIGITAL ETHICS CANVAS

ETHICAL CHALLENGES

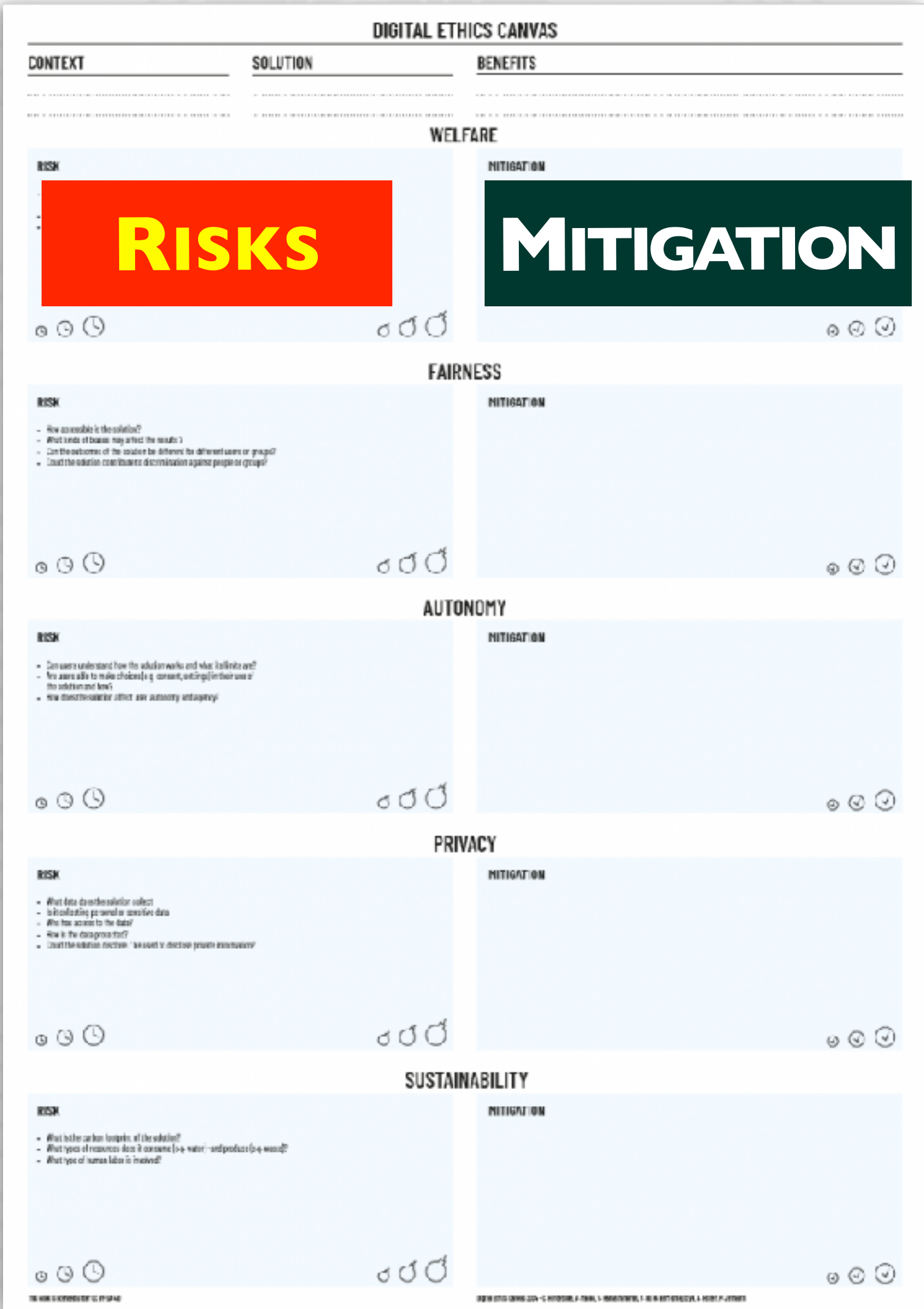
WELFARE

FAIRNESS TO USERS

USER AUTONOMY

USER PRIVACY

SUSTAINABILITY

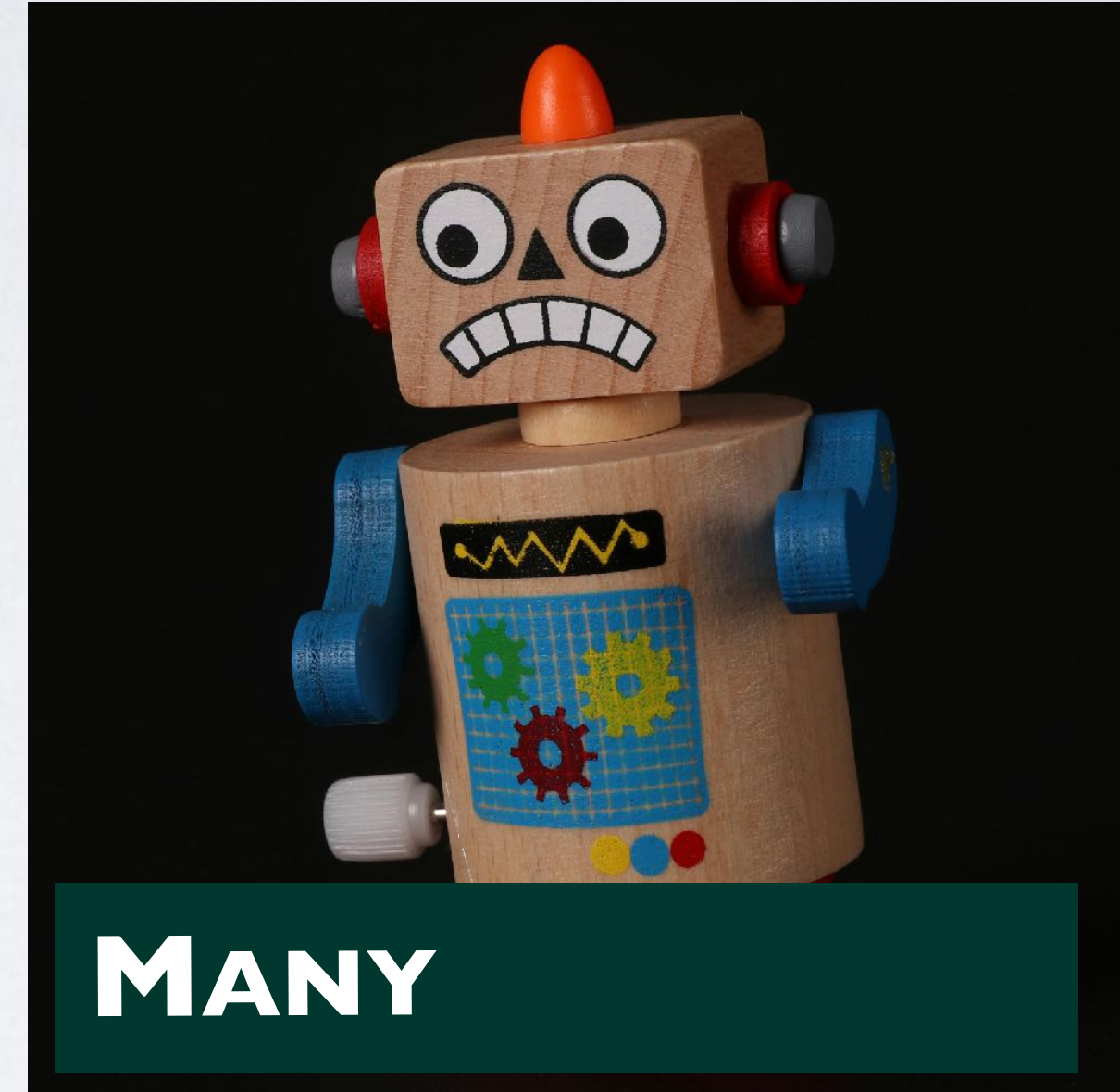


DIGITAL ETHICS CANVAS

LENSES

BENEFITS

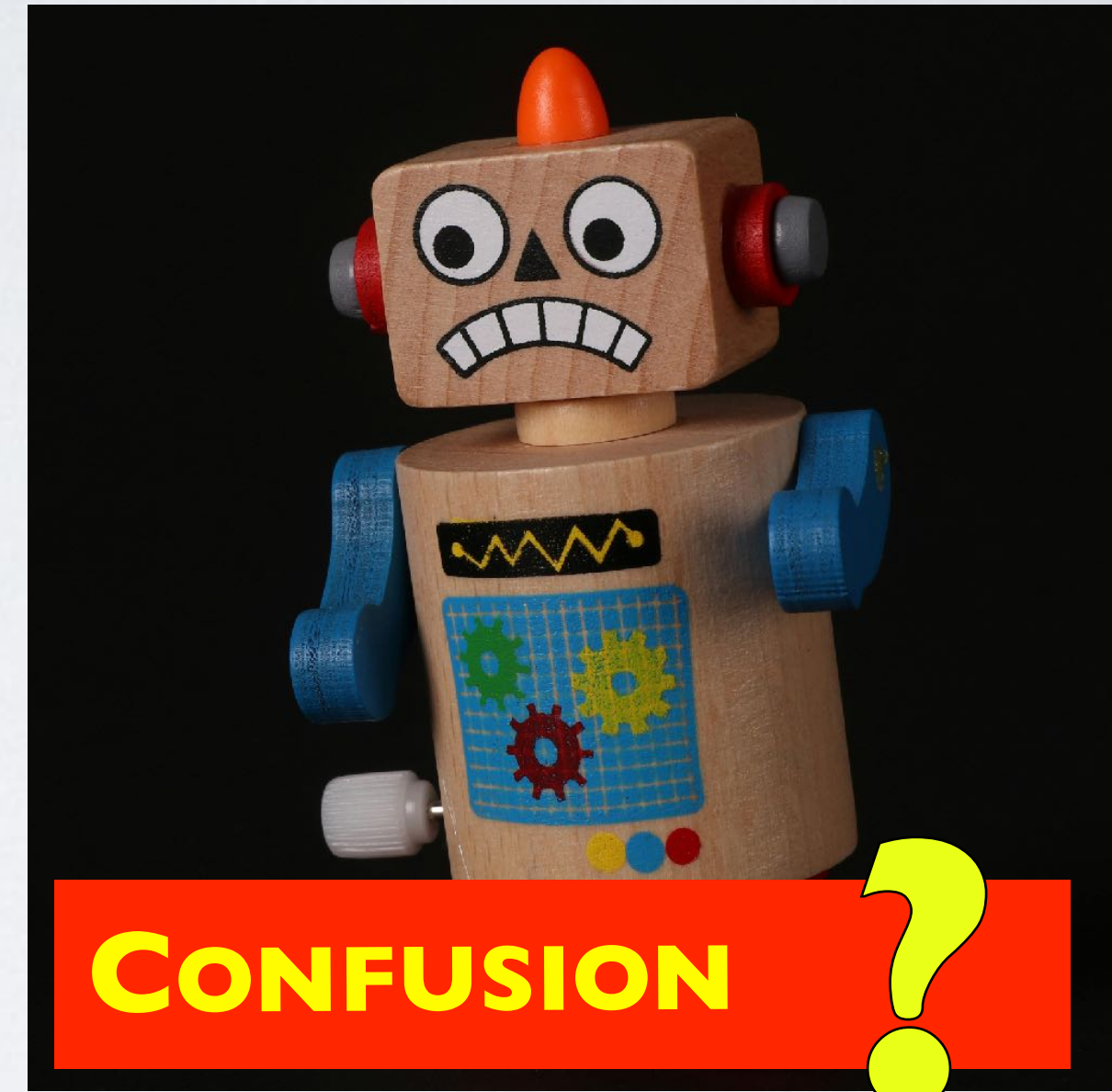
LENS



Are we building something *useful*?

WELFARE

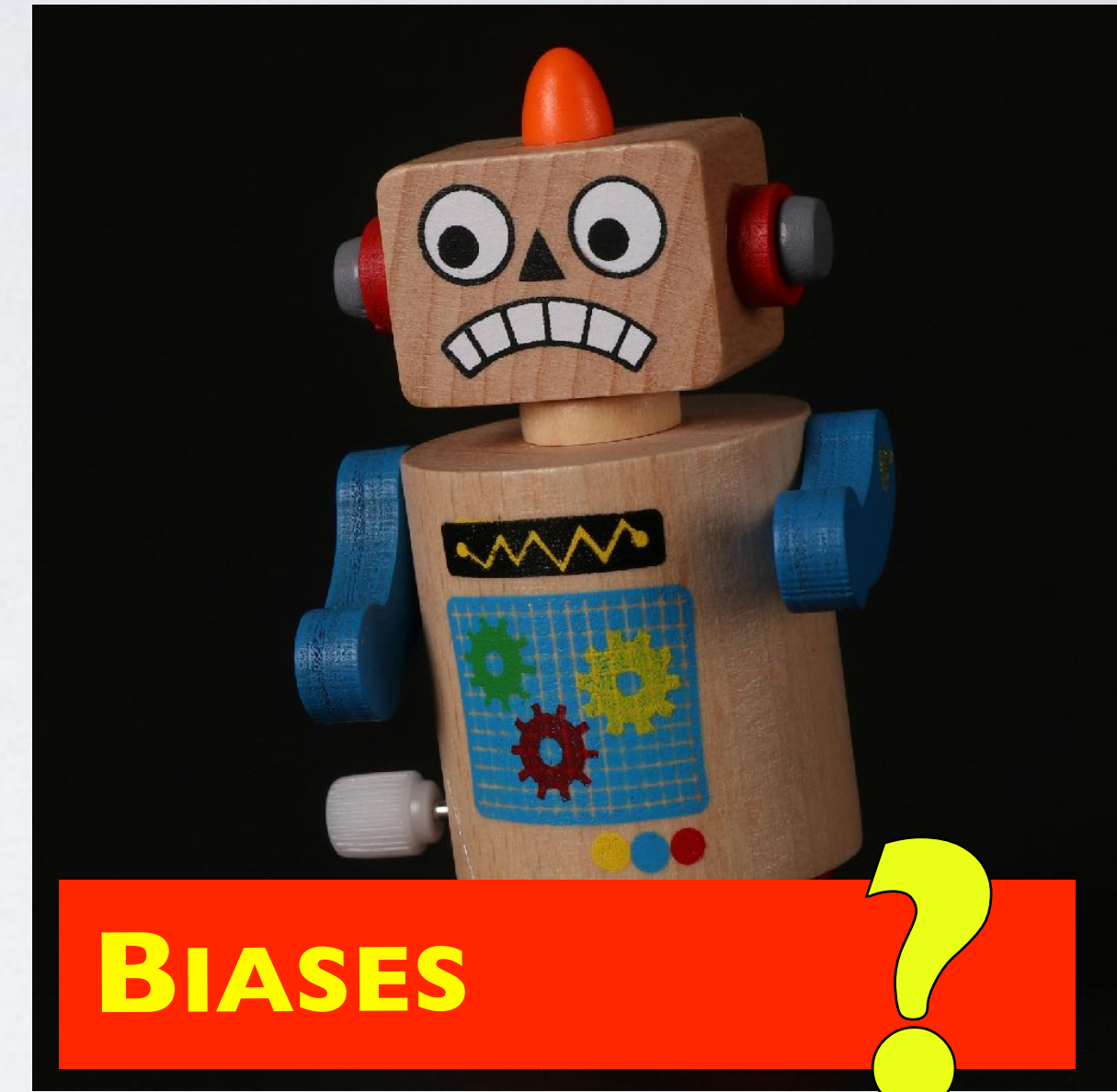
LENS



Is it *dangerous*? Are we *protected*?

FAIRNESS

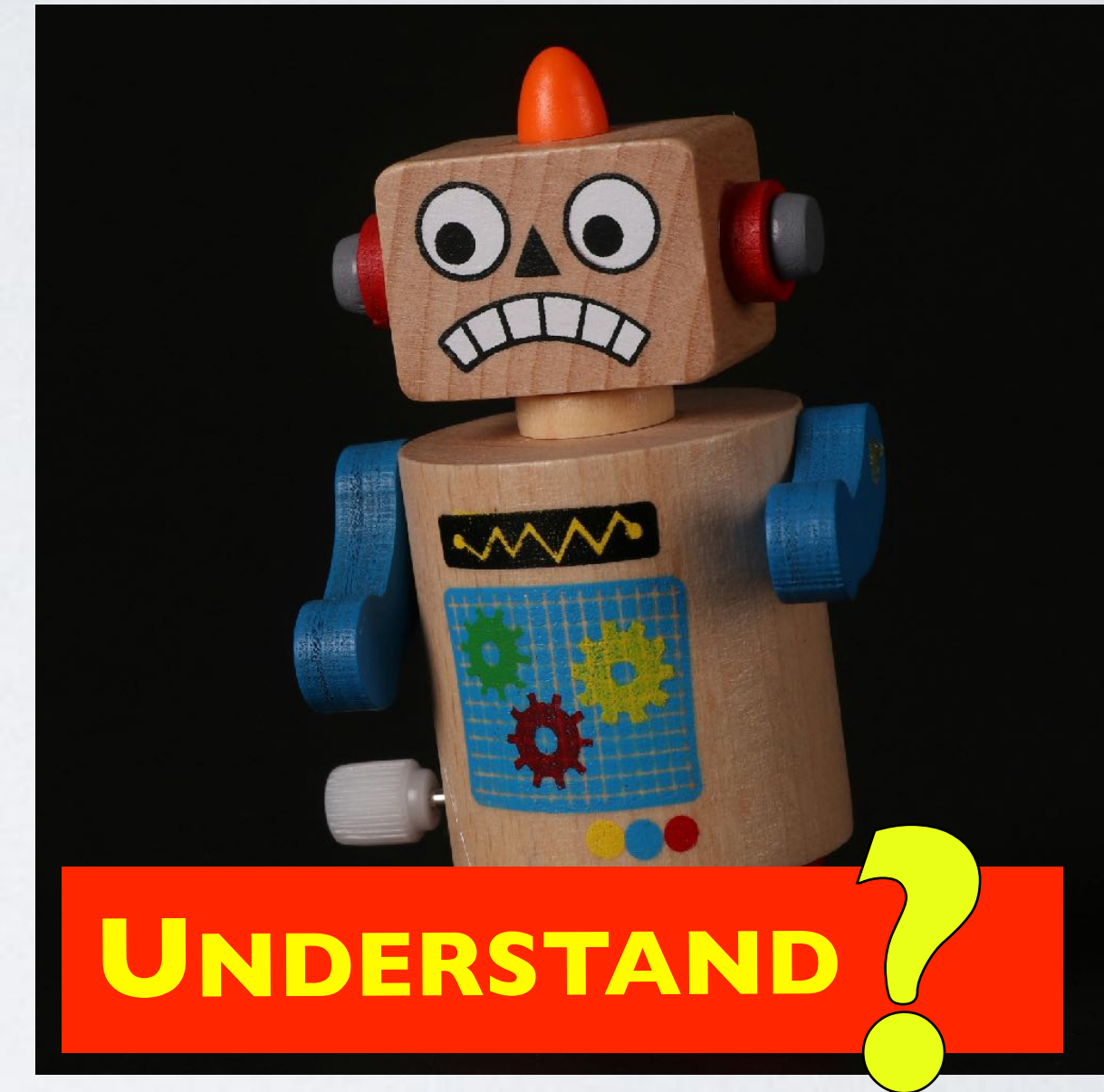
LENS



Is it accessible? Biased?

AUTONOMY

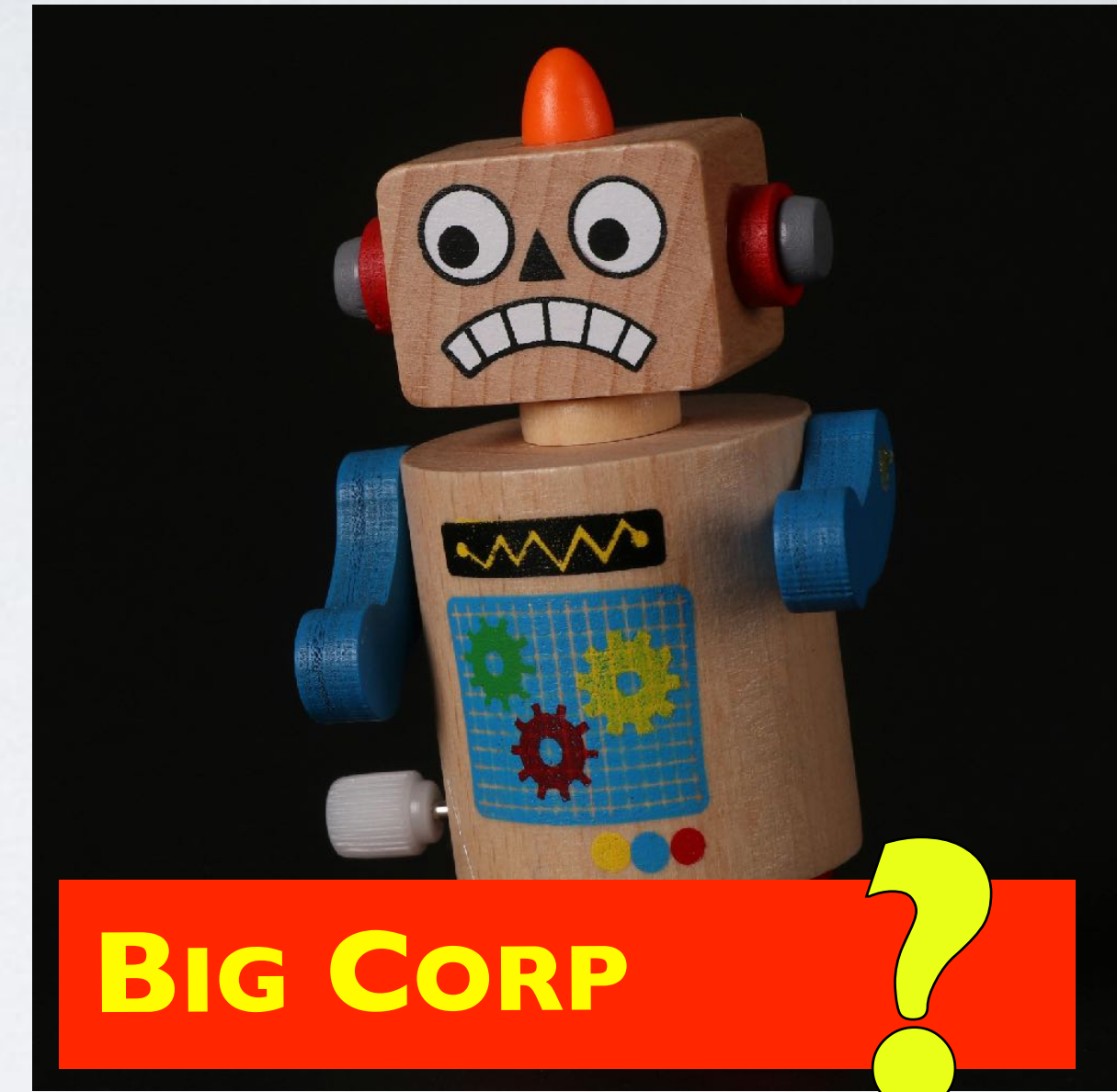
LENS



Can users understand? Make choices?

PRIVACY

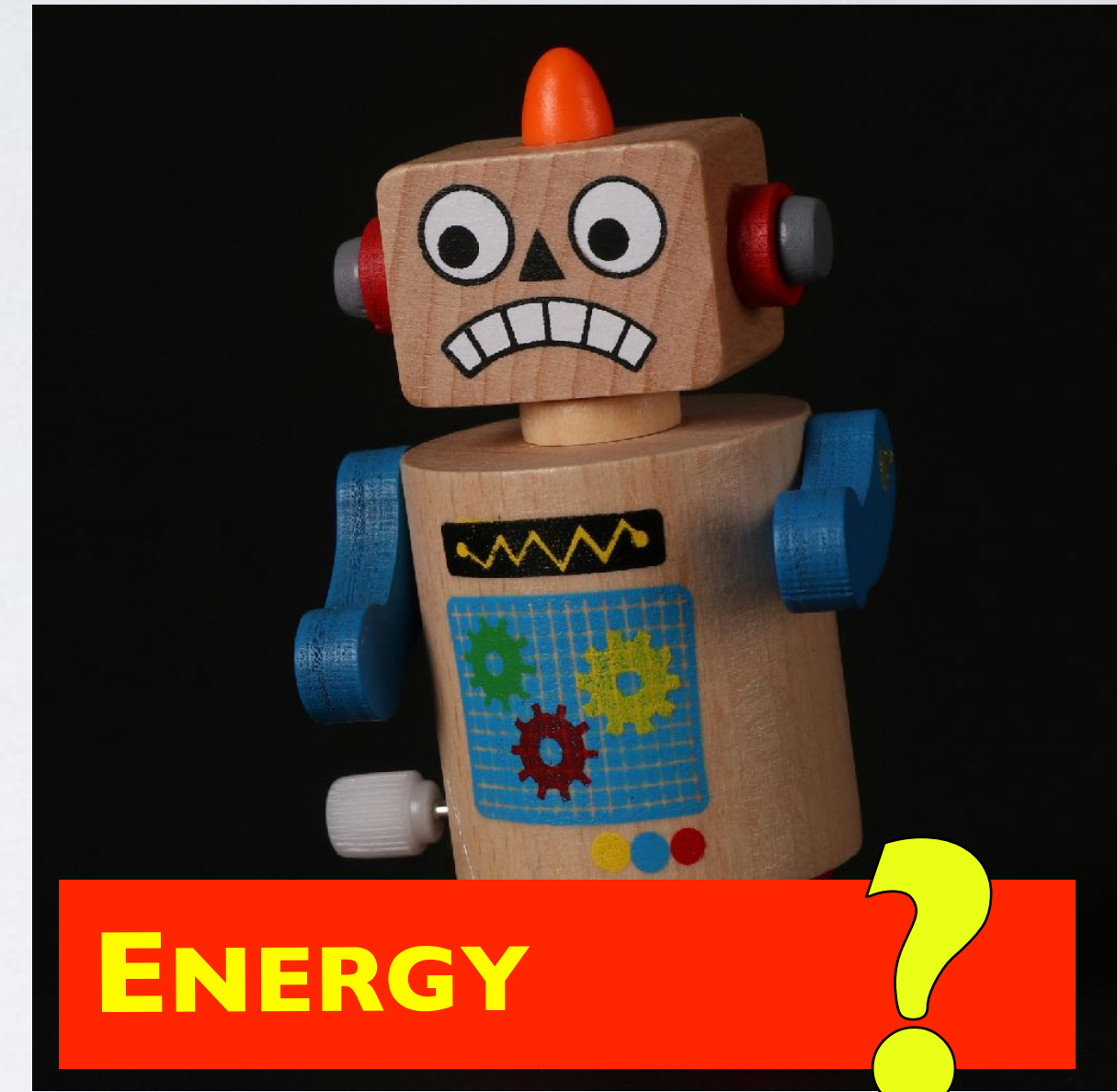
LENS



Is our user's *privacy* respected?

SUSTAINABILITY

LENS



Are we destroying the planet?

BENEFITS

WELFARE

FAIRNESS

AUTONOMY

PRIVACY

SUSTAINABILITY



Are we destroying the planet?

EXPOSES
MANY
RISKS!

CANVAS

INFLUENCE

OR

WALK AWAY

SO GOOD THEY CAN'T IGNORE YOU

Why **Skills** Trump Passion
in the Quest for **Work** You Love

CAL NEWPORT

INFLUENCE

DOING
A FANTASTIC JOB
HELPS!



INFLUENCE

CHOOSE
YOUR
ALLIES!

INFLUENCE

DINHEIRO

Escudos Ct's

45.00P

NATIONAL

FIND
BUSINESS
REASONS



Don't be evil..

INFLUENCE

BACK
TO
VALUES

WALK AWAY?

VALUES
DON'T MATCH?
GO AWAY!

PRE-CODA

TOUR DE SUISSE BROADWAY 45 TRAPEZ

<https://www.tds-velo.ch>

HAPPY CUSTOMER!

On mine:
Rohloff Electronic
14-gear hub

Bosch 45km/h
assistance

Supernova
front light

4-piston brakes

On mine:
Gates belt, no chain!



CODA

SO, WE
NEED ETHICS
BASED ON
SHARED VALUES



Links + recording, on my blog
<https://grep.codeconsult.ch/2026/05/06/ethicszh/>

MULTI-LENS DECISION CANVAS

