GUIDANCE ETHICS AS ENABLING INFRASTRUCTURE

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- CLEAN ENERGY
- MEDICAL APPLICATIONS
- RISK OF ACCIDENTS

- PROBLEMATIC WASTE
- DUAL USE


ARTIFICIAL
INTELLIGENCE


• SAFER REACTORS
• BETTER PREDICTIONS OF DISASTERS
• BETTER MEDICAL APPLICATIONS
• REPLACEMENT?
• UNCONTROLLABLE?

AI ETHICS: ‘FAT’ PRINCIPLES

- **Fairness:**
  no bias or discrimination
- **Accountability:**
  responsibility for AI-based decisions
- **Transparency:**
  openness about datasets
  and explainable data processing

OVERVIEW

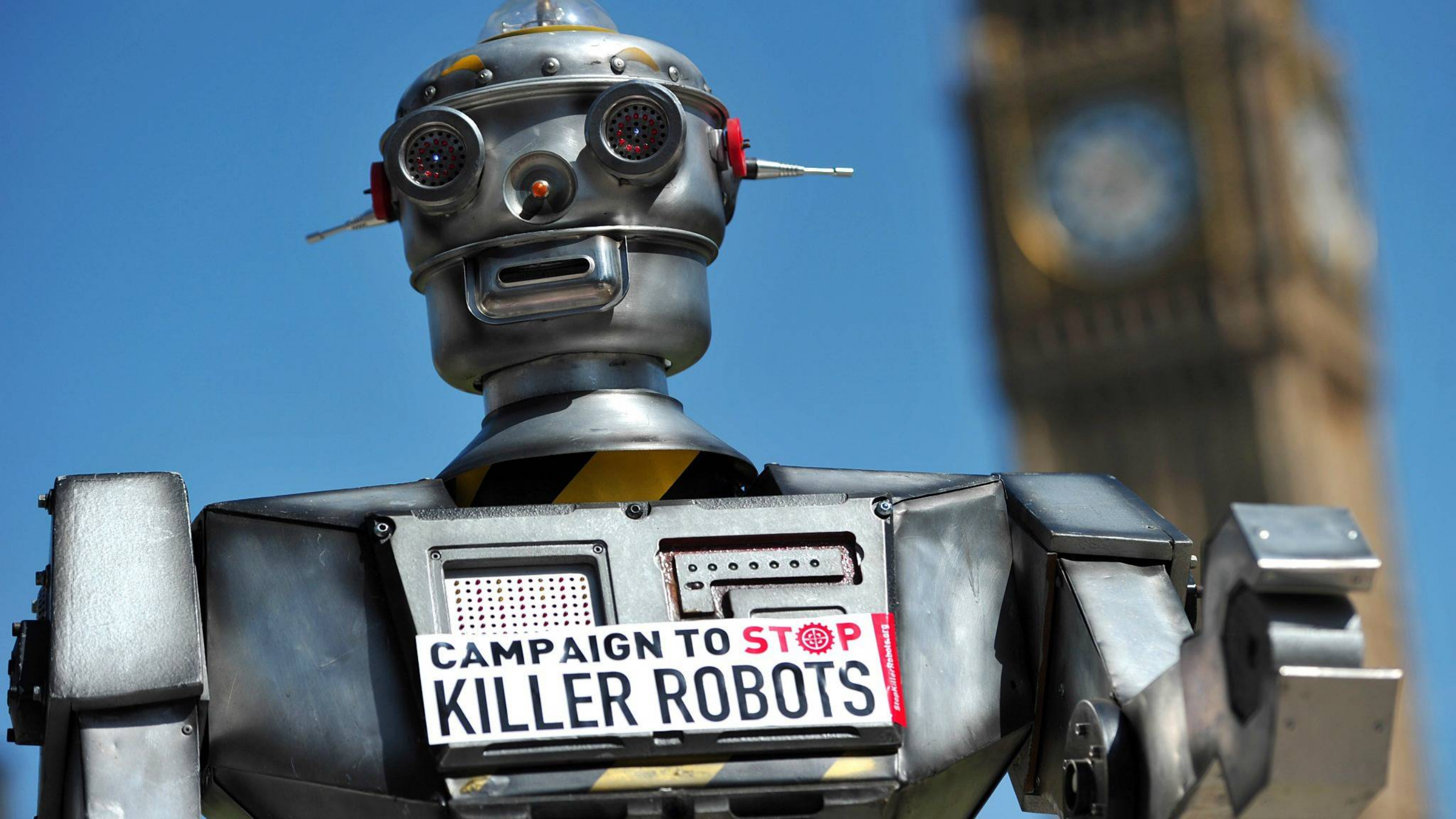
1. **NEGATIVE ETHICS**: *PROTECTION FROM EVIL*
2. **POSITIVE ETHICS**: *CONDITIONS FOR THE GOOD*
3. **GUIDANCE ETHICS**

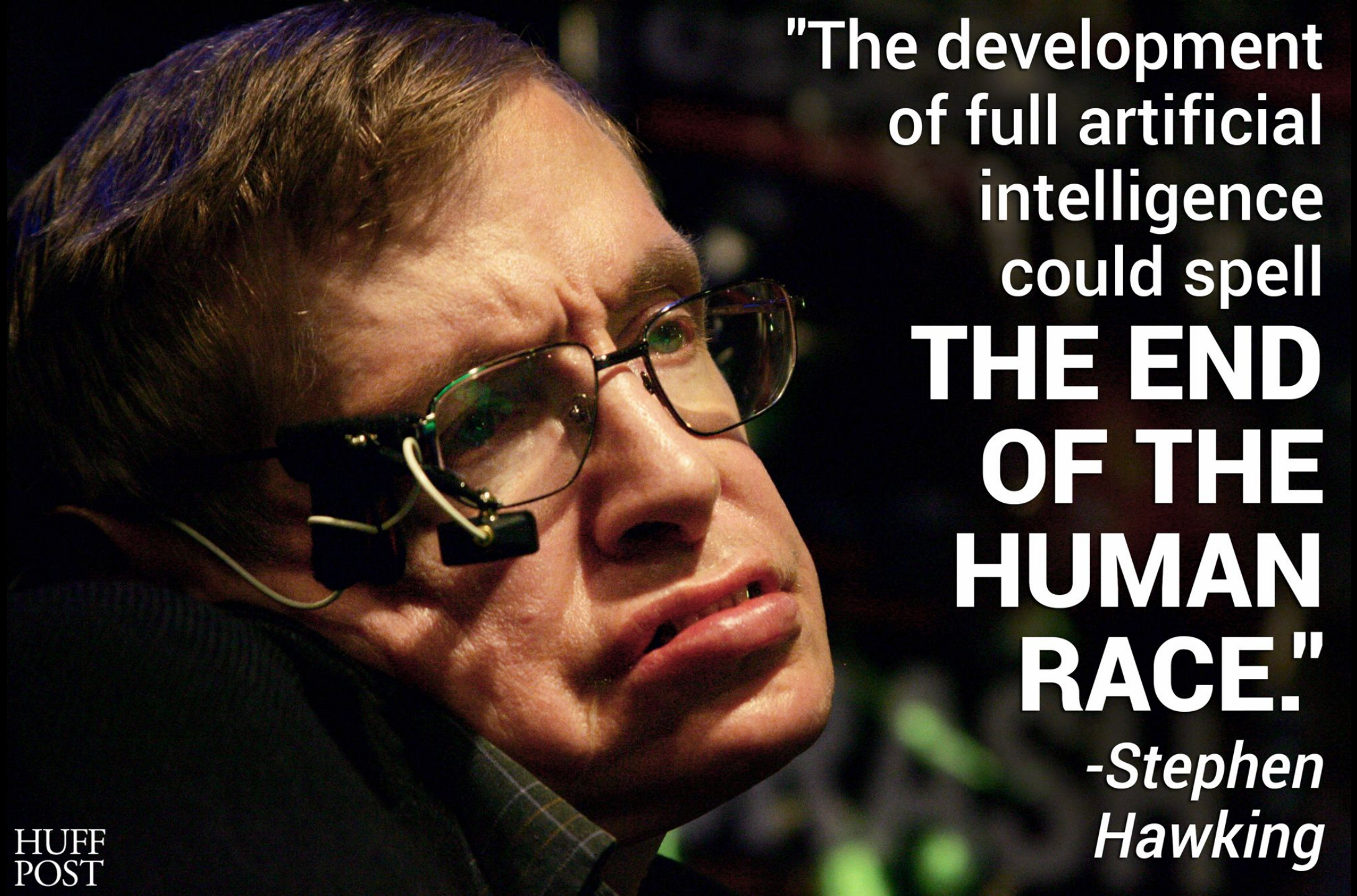
1. NEGATIVE ETHICS

THE PRECAUTIONARY PRINCIPLE

BECAUSE CATASTROPHE JUST ISN'T WORTH THE RISK


There is
No Safe
Dose
- BEIR VII (National Academy of Science)
STOP the WASTE
NO NUCLEAR
POWER


CAMPAIGN TO STOP
KILLER ROBOTS
stopkillerrobots.org


"The development of full artificial intelligence could spell
THE END OF THE HUMAN RACE."
-Stephen Hawking
HUFF POST

Negative Ethics:

- Protection from harm
- Setting boundaries
- Based on norms and principles

- Regulation as enabler of innovation!
- But: what about the good?

2. POSITIVE ETHICS

AI for Social Good

The nuclear industry is commited to the

SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development contains 17 goals to erradicate poverty, protect the environment and guarantee prosperity for all. **Nuclear technology is commited to the Sustainable Development Goals and contributes to reach them.**

3 GOOD HEALTH AND WELL-BEING

The nuclear sector is commited to a safe work environment and the well-being of workers as well as of society.

Nuclear medicine saves lives.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Nuclear industry drives science and technology forward and invests on R+D+i programs.

Nuclear power plants guarantee the stability of the electric system.

7 AFFORDABLE AND CLEAN ENERGY

Nuclear power plants are environment-friendly. They do not produce greenhouse effect gases, SO_x or NO_x.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Nuclear power plants produce electricity, an essential commodity, in a continuous, safe and reliable manner that makes responsible use of resources.

8 DECENT WORK AND ECONOMIC GROWTH

The nuclear sector generates stable and quality jobs as well as socioeconomic development, both globally and in the areas of the sites.

13 CLIMATE ACTION

Nuclear energy helps to mitigate climate change by producing large quantities of electricity without CO_2 emissions.

Foro Nuclear
Foro de la Industria Nuclear Española

Positive Ethics:

- Stimulating the good
- Creating conditions
- Based on values

- Ethics as enabler:
  connecting values and technology
- But: which values?


UNESCO

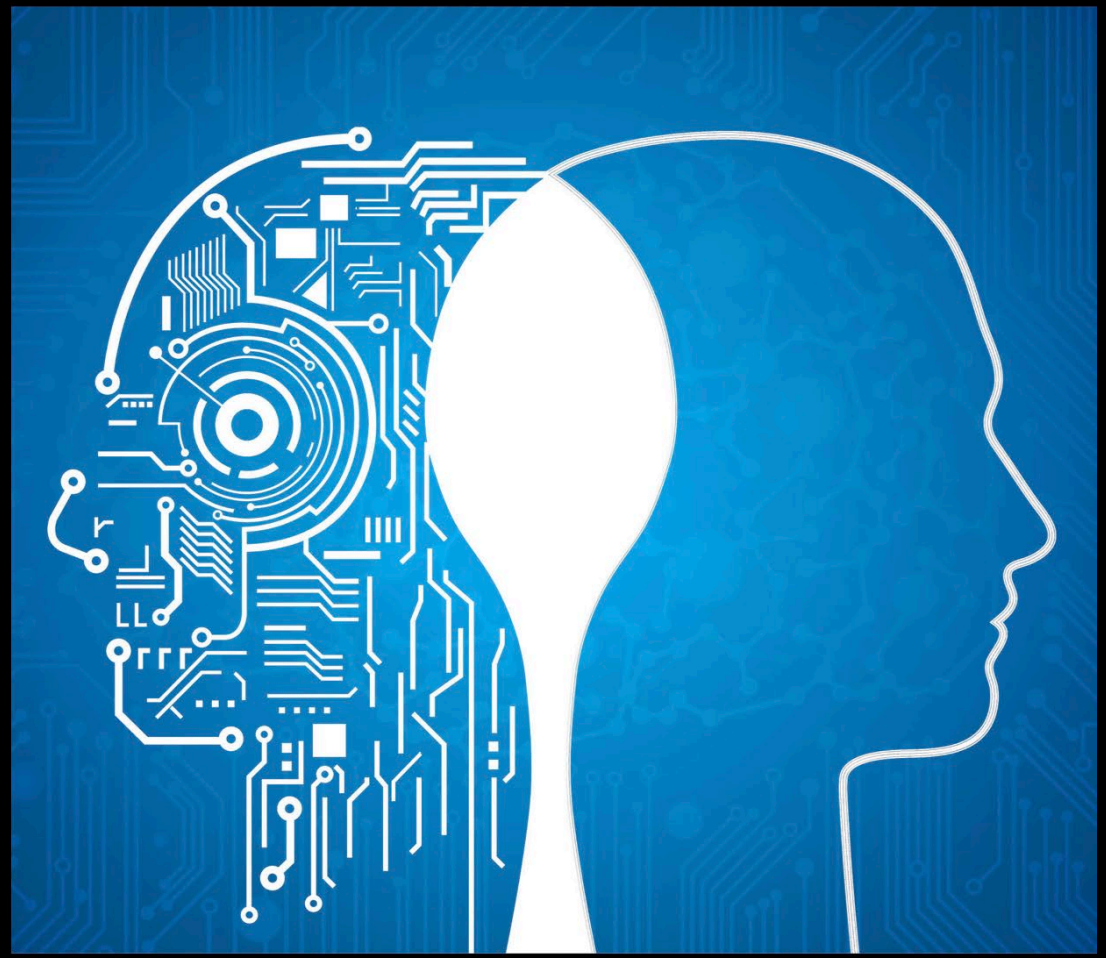
3.
GUIDANCE ETHICS

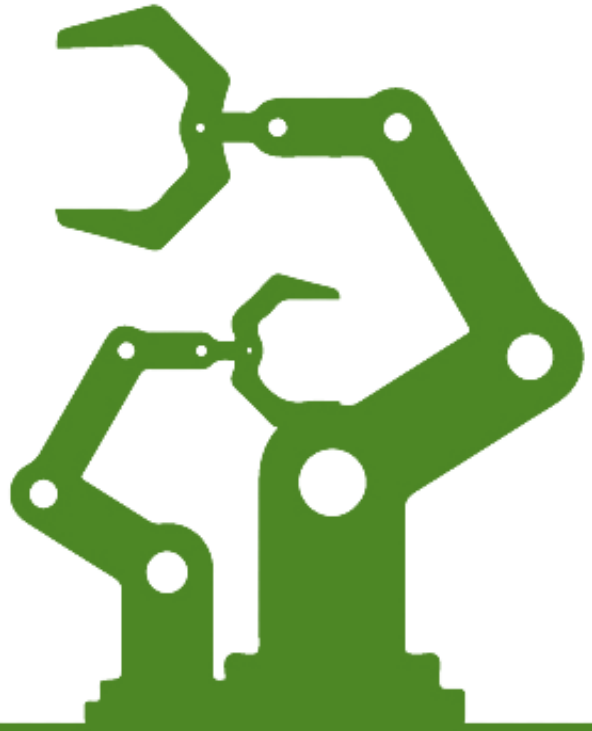
Human-Technology Relations

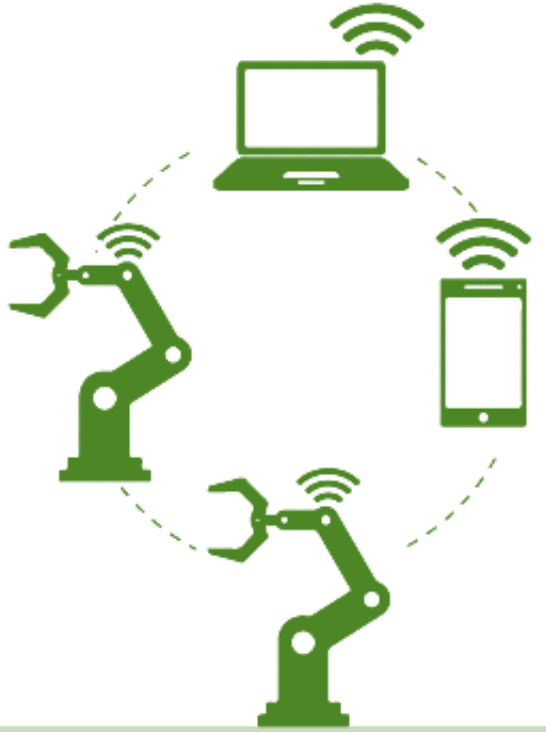
Technological Mediation

Paleolithic Handaxe
150000 BC

Apple iPhone
2017 AD







INDUSTRY 1.0

MECHANIZATION, WATER POWER, STEAM POWER

INDUSTRY 2.0

MASS PRODUCTION, ASSEMBLY LINE, ELECTRICITY

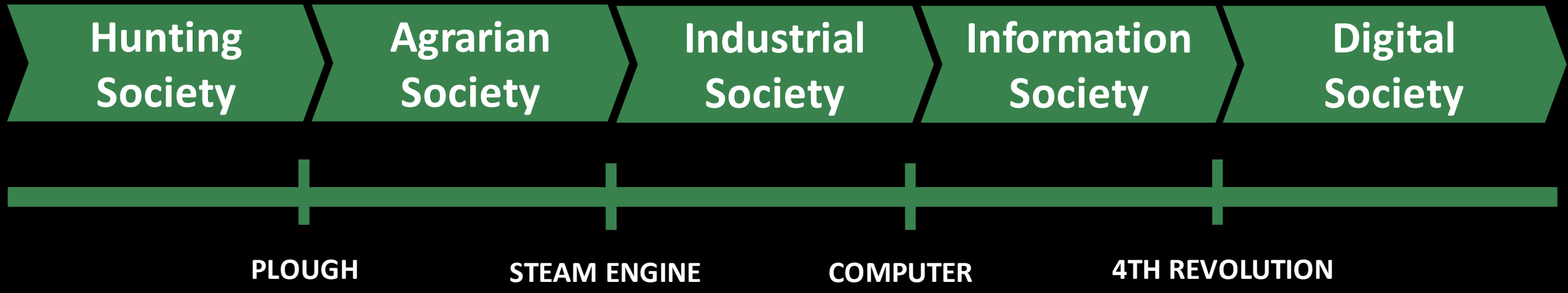
INDUSTRY 3.0

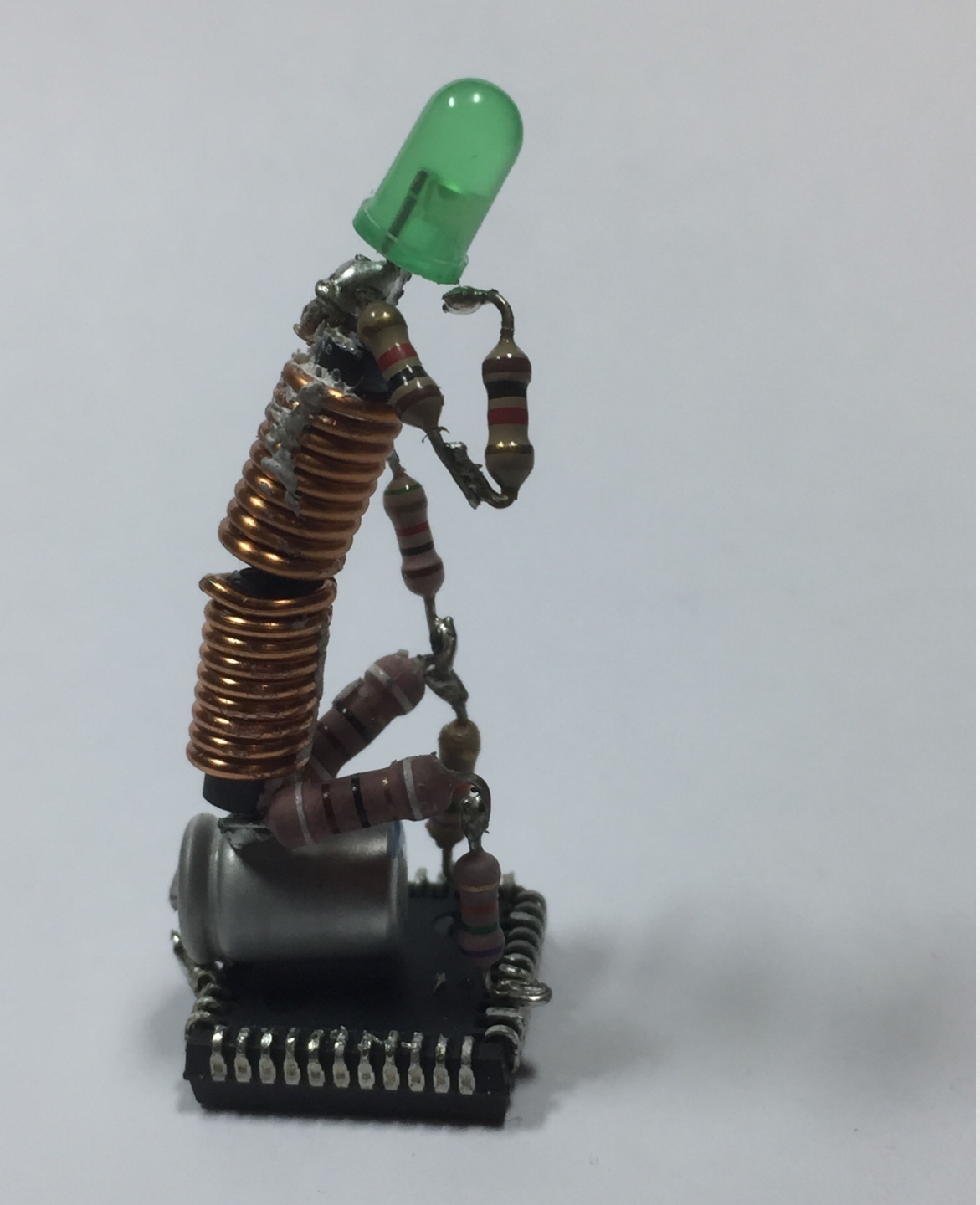
COMPUTER, ELECTRONICS AND AUTOMATION

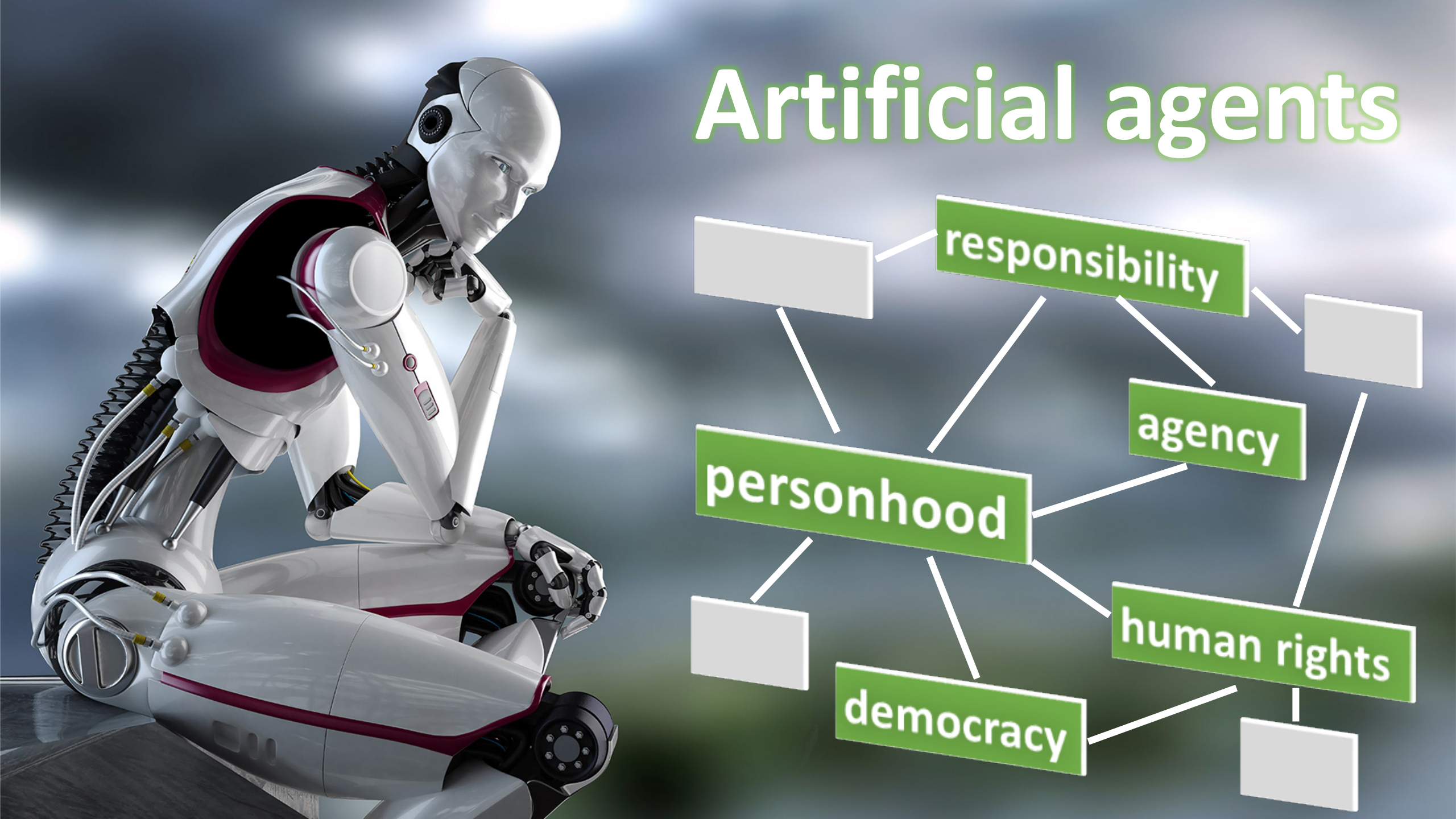
INDUSTRY 4.0

CYBER PHYSICAL SYSTEMS

SOCIETY 5.0


Hunting Society
Agrarian Society
Industrial Society
Information Society
Digital Society
PLOUGH
STEAM ENGINE
COMPUTER
4TH REVOLUTION




Artificial agents
responsibility
agency
personhood
human rights
democracy

MEDIATION AND ETHICS

1. **Moral quality of impact of technology**
   - *'impact assessment'*
2. **Impact on moral agency**
   - *mediated moral actions and decisions*
3. **Impact on morality**
   - *mediated moral frameworks*

GUIDANCE ETHICS

1

From inside,
not from outside

ACCOMPANIMENT versus
ASSESSMENT

2

Positive,
not negative

FOCUS ON VALUES

3

Bottom-up,
not top-down

CITIZEN ETHICS
STAKEHOLDER ETHICS

Guidance ethics approach