

On AI & UNESCO

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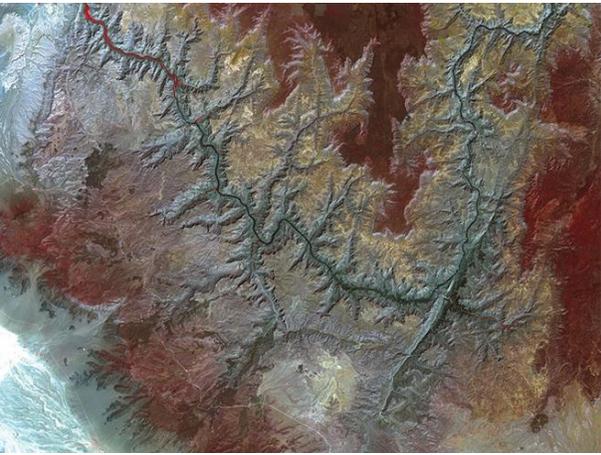


Quick Intro to AI

What do natural sciences do?

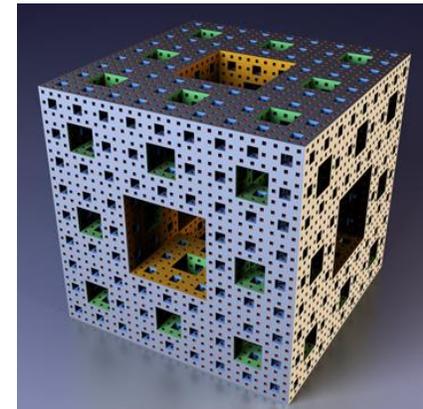
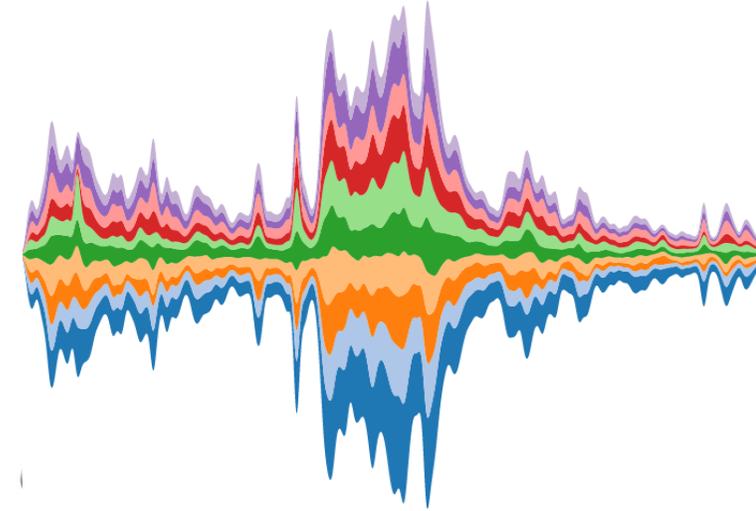
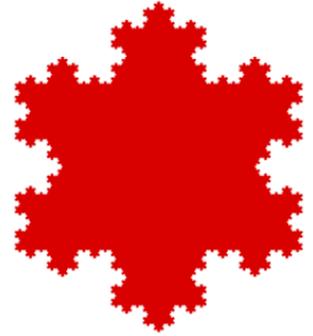
(...and AI is just a part of natural sciences)

- Nature is organized in structures which are mostly self-similar
 - ...structures look like crystals
- Science tries to uncover hidden structures in nature
 - ...it doesn't discover something new, it is rather uncovering what is out there, already existing



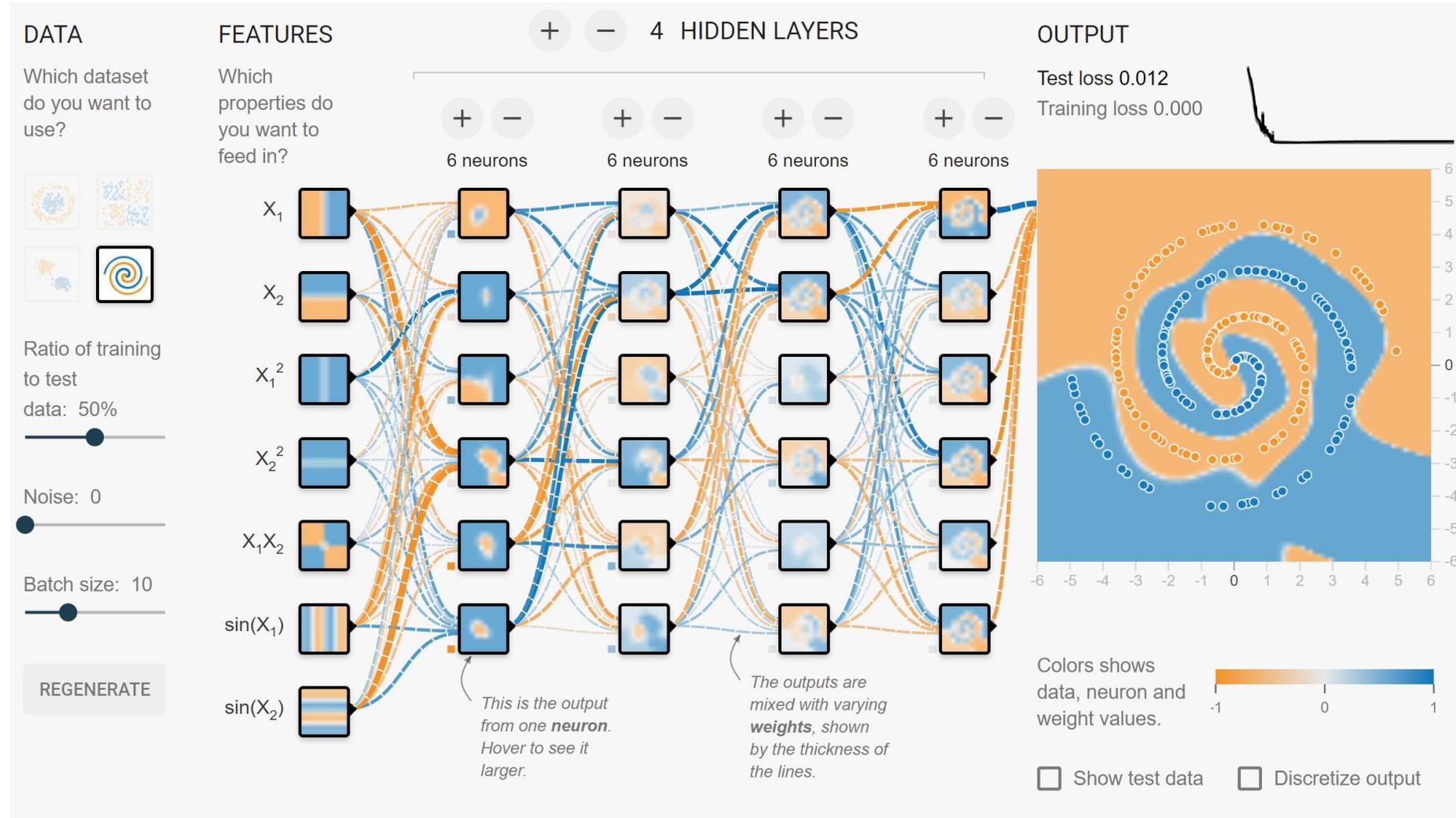
How science describes the nature?

- Science developed formalisms (languages) to describe structures in nature
 - ...usually, these are mathematical formulas
 - ...if we graphically represent formulas, the structures look similar to the ones in nature
 - Most popular formalisms in science are algebra and logic – they nicely correspond to the basic building blocks in nature



...and how we do this in AI?

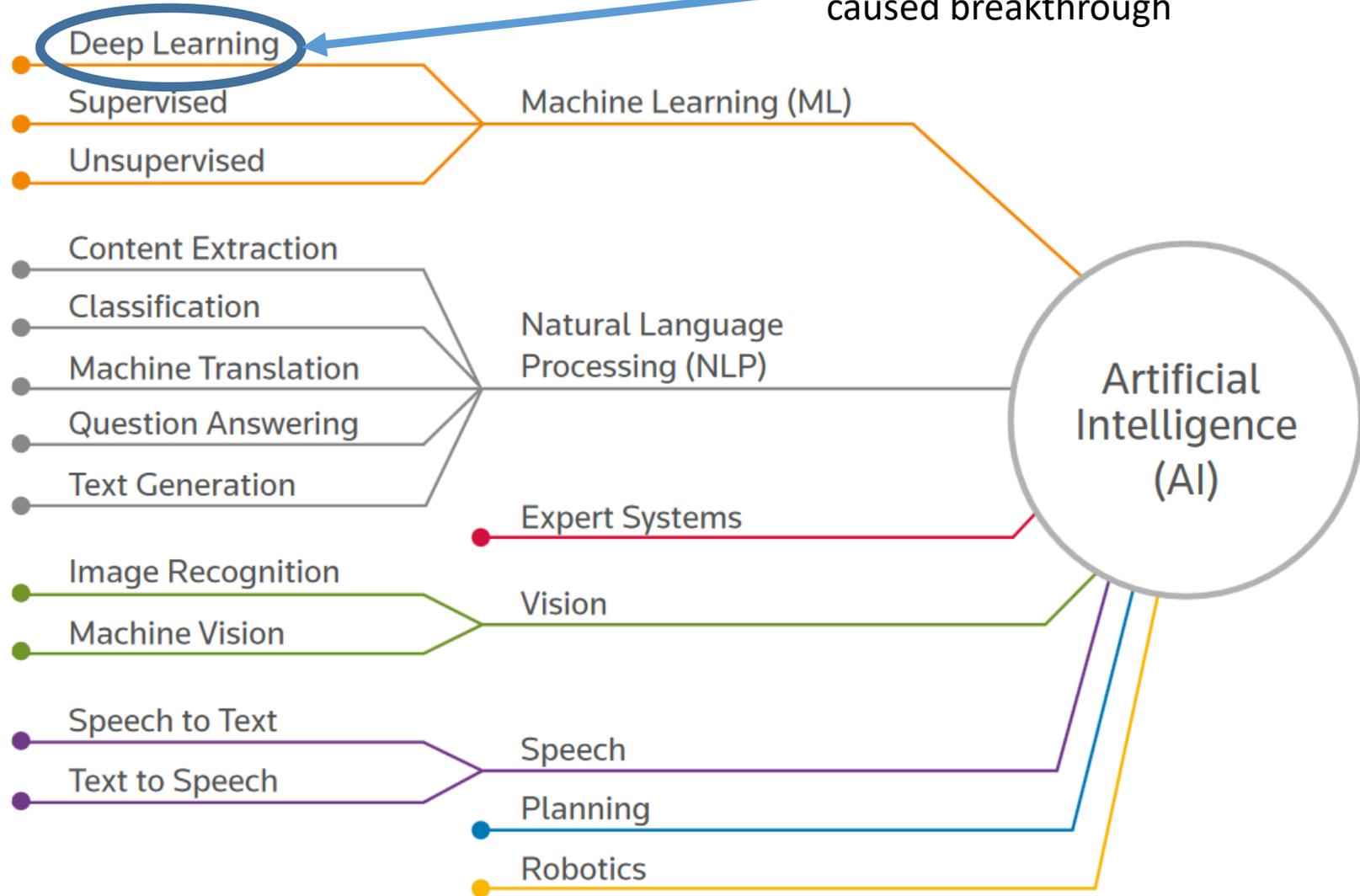
(<https://playground.tensorflow.org/>)



Structure of AI and its subfields

...the area of AI which caused breakthrough

- AI consists from a number of subareas which, in many ways, are converging by using common building blocks
- ...recently, Machine Learning is generating advances in most of AI subfields



The name of the game. What is AI?

(recent OECD definition of AI)

AI system

An AI system is a machine-based system that is capable of influencing the environment by making recommendations, predictions or decisions for a given set of objectives.

It does so by utilising machine and/or human-based inputs to:

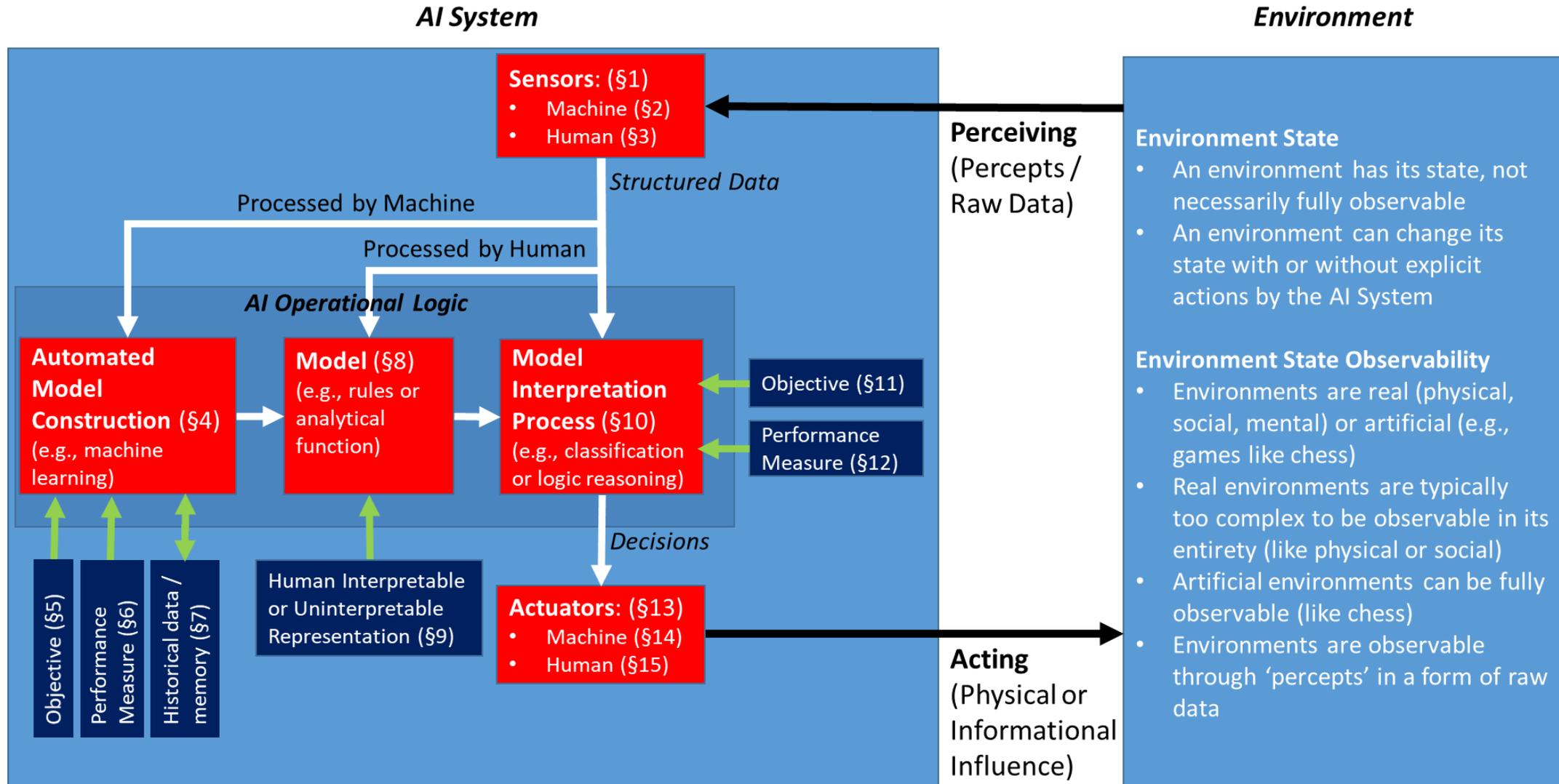
- i)* perceive real and/or virtual environments;
- ii)* abstract such perceptions into models manually or automatically; and
- iii)* use model interpretations to formulate options for outcomes.

OECD Principles along which AI should be regulated

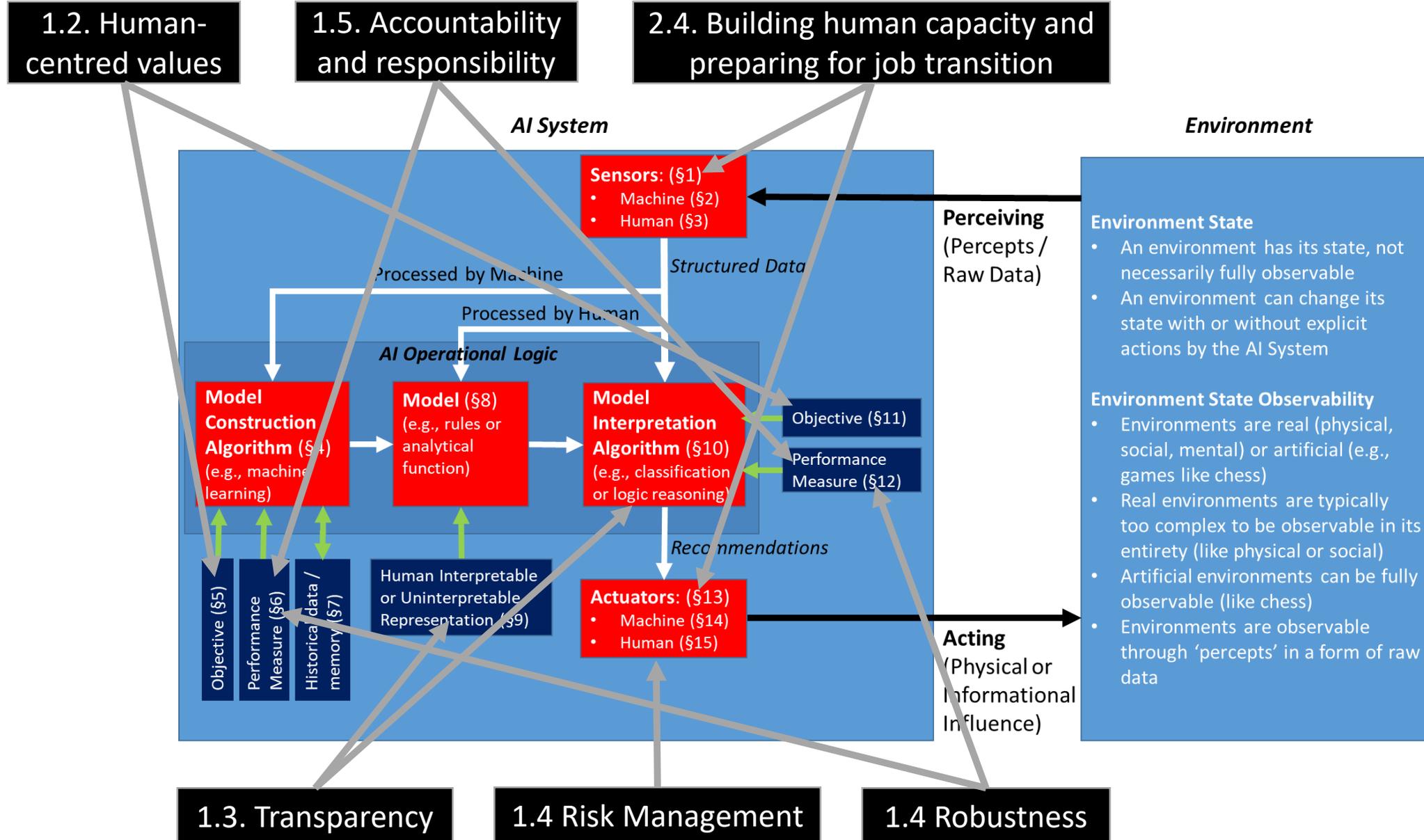
(finalized draft from Feb 2019)

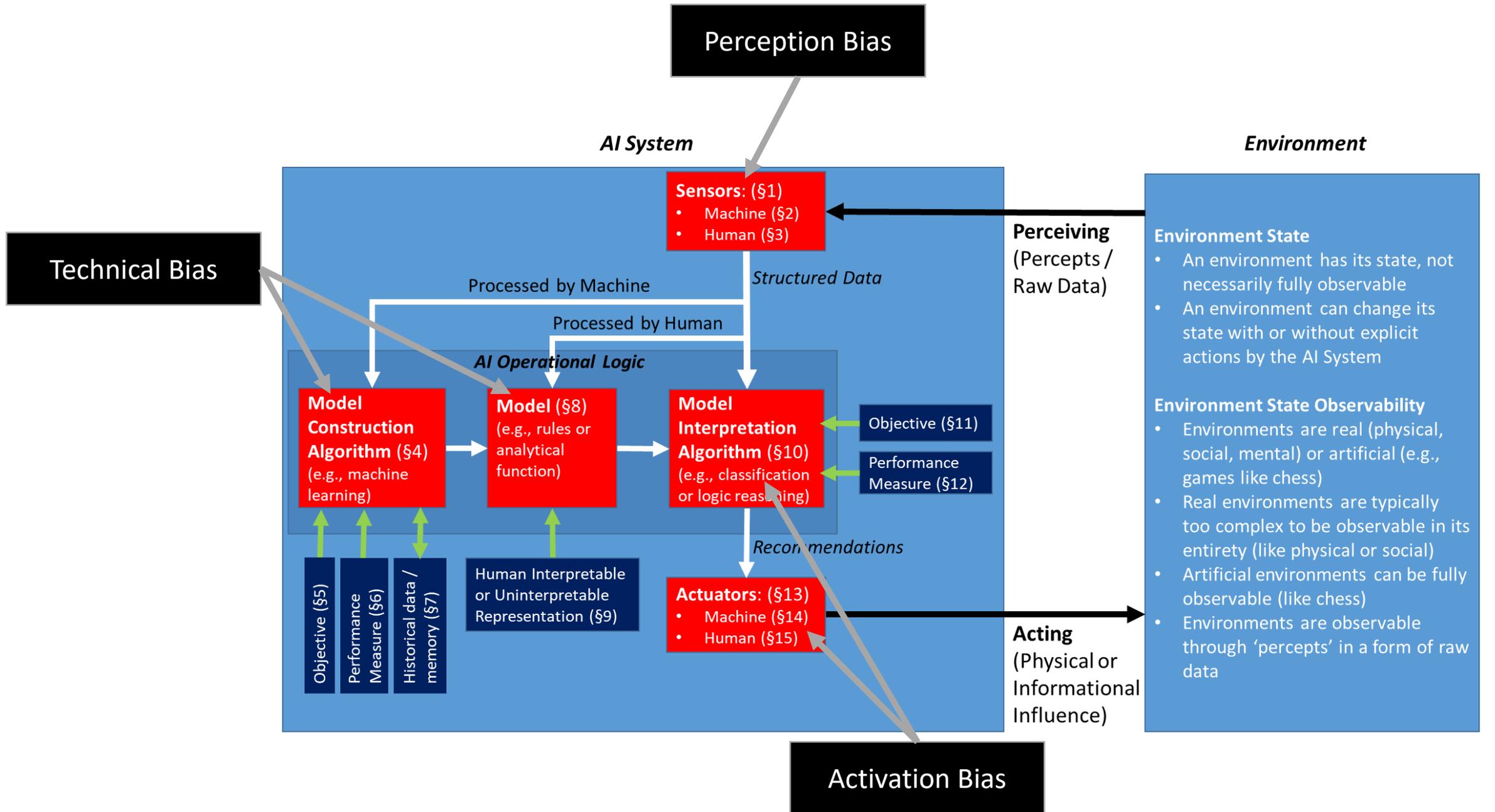
- PRINCIPLES FOR RESPONSIBLE STEWARDSHIP OF TRUSTWORTHY AI
 - 1.1. Inclusive and sustainable growth and well-being
 - 1.2. Human-centred values and fairness
 - 1.3. Transparency and explainability
 - 1.4. Robustness and safety
 - 1.5. Accountability
 -
- NATIONAL POLICIES FOR TRUSTWORTHY AI
 - 2.1. Investing in responsible AI research and development
 - 2.2. Fostering an enabling digital ecosystem for AI
 - 2.3. Providing an agile and [controlled] policy environment for AI
 - 2.4. Building human capacity and preparing for job transformation

Architecture of an AI system



How various issues relate to AI systems?





AI & UNESCO

Some points related to AI & UNESCO

- Since UNESCO is about 'global good', and the world is changing rapidly, the key challenge is to keep pace with the developments and to overcome slow speed in adopting the ever-lasting change.
- ...so, the challenge is to redefine the mindset in the organization which will aim to be ***on the top of relevant global things***, and not just to follow.
- Is it possible for UNESCO to be on the top? ...yes, but in a pragmatic way emphasizing 'the good' sides of technology

Some points related to AI & UNESCO

- There is a big amount of an unleashed '**goodwill**' in the world which just needs to be **channelized** and adopted
- UNESCO seems to be the organization which could collect and channel such goodwill towards greater social good

- There are many initiatives in the world on AI & Social Good (education, projects, innovative business models etc.)
 - ...there is a good opportunity for UNESCO to get involved and propagate good practices

Some points related to AI & UNESCO

- One of the major drivers of change in the world is rapid technology development which, as a consequence, is changing global power and influence social power structure
- In the recent decades there were two major jumps which influenced and are still influencing the change:
 - (a) **Internet/Web**, which enabled to connect the world in a way which was not possible before, and
 - (b) **Artificial Intelligence**, as a forefront technology, which allows small powerless individuals and communities to get powers which were not available before
- ...both for a relatively small cost and the major currency is becoming the knowledge how to build and operate new tools.

Some points related to AI & UNESCO

- While internet technologies seem to get stabilizing and are becoming a social infrastructure, AI is only at the beginning and we can expect big developments in the next 10-20 years
- This will influence the society even more as we know it at the moment.
- Of course, there are dangers and opportunities and only by mastering the constant innovation, one can use it in one or the other way.

Some of the discussion points

- If we agree on **knowledge to be the main currency of the future**, how to bring knowledge in a proper operational form to as many people as possible?
- If UNESCO wants to position itself as a “**AI for Good**” hub for the future, what are the major obstacles which might be preventing this to happen?
- What needs to be done on the side of **UNESCO to attract lots of global goodwill**, channel such energy towards UNESCO goals, and ultimately influence the world in a positive way?