

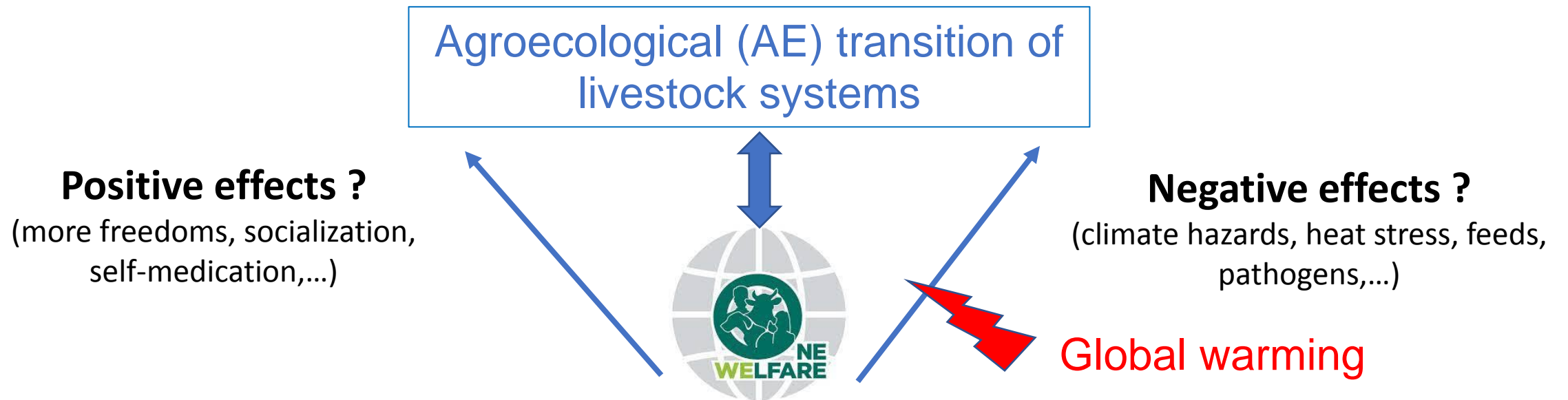
Session animal welfare (AW) : moving from stress elimination to positive emotions



An example of a new collaborative project addressing the **assessment, evaluation and improvement of AW**, under the French Research Priority Policy for new equipment and programs in Agroecology and ICT

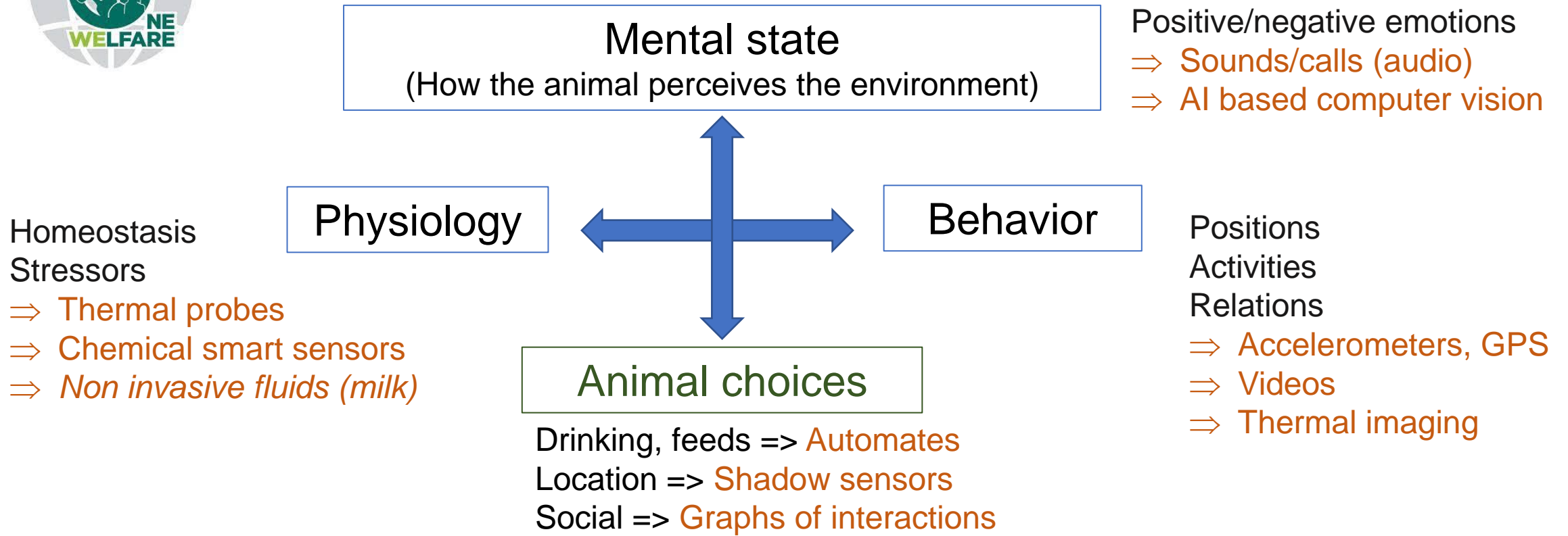


WAIT4: Welfare: Artificial Intelligence and new Technologies for Tracking key indicator Traits in animals facing challenges of the agroecological Transition (coord. INRAE – Florence Gondret)





Not a steady-state phenotype but changing over hours, days, weeks and seasons....



- **Developing/testing ICT** to obtain (send and receive) continuously-transmitted data under different environments (indoor, outdoor, grazing, loose, organic farming) and climates (continental, harsh, tropical) and in response to AE practices – **Real-time monitoring**
- **Coupling massive heterogeneous information** (symbolic/numerical data; time) – **Holistic view**
- **Developing methods of AI** to identify **patterns** of AW (make sense + discern the useful and not-useful information) – **Iceberg signals - thresholds (warning signals /positive improvement)**



4 institutional partners : INRAE, Inria, CEA, INSA, representing ~50 scientists

* animal science : physiology, ethology, nutrition, health, PLF

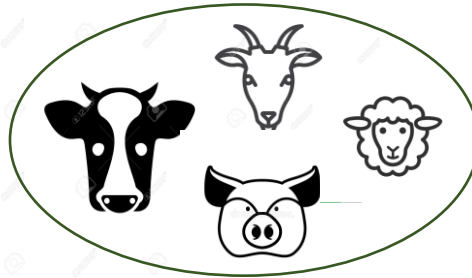
* chemical science

* data-science : statistics, informatics, AI (supervised ML, graphs, pattern-mining)

+ Participative science with stakeholders: living lab on livestock systems (LIT-Ouesterel)



3 millions €
5 years



4 species:

⇒ Genericity of the algorithms

⇒ Specificity of the thresholds

Outcomes of the WAIT4 project

✓ Tailored-made AW indicators (physiological, behavioral and mental dimensions)

* What are the relevant frequencies to assess those traits ? => More frugal sensors can be then developed

* What are their relative importance ? => Accentuate the phenotyping efforts on some traits

✓ Evaluation of AE practices for deteriorated/improved AW

* Messages to stakeholders ? => objectified by scientific bases

✓ Encourage the change of paradigm from an obligation of means to the obligation of results for AW