ANITI: Artificial and Natural Intelligence Toulouse Institute

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A little history

- AI has been around for a little over 50 years
- all the rage at times and at others almost forgotten
- increased computing power and more data have led to a resolutely empirical turn
- with many successes (chess, go)
- and a force for good and for ill.

Interdisciplinary institutes for artificial intelligence

- 3 parts (core, integration, applications)
- find an applicativ sector : health, transport, defense and security, environment, a new administration, industry 4.0.
- financing for chairs, bringing in and retaining talent to France.

Goals

To create 4-5 research and education centers with strong international visibility .

Why an AI institute in Toulouse

- more than 500 researchers in academia working in AI, et 400 AI scientists in industry
- 3 major labs in the heart of AI, l'IRIT, l'IMT, le LAAS ; more than 33 labs involved ; 4 universities, 6 engineering schools, CNES, ONERA, Météo-France.
- strong links with transportation/mobility industry (aerospace, automobile)
- important ties to academic, industry and government work on the environment, life sciences and matter.
- with large quantities of data about physical processes of high quality

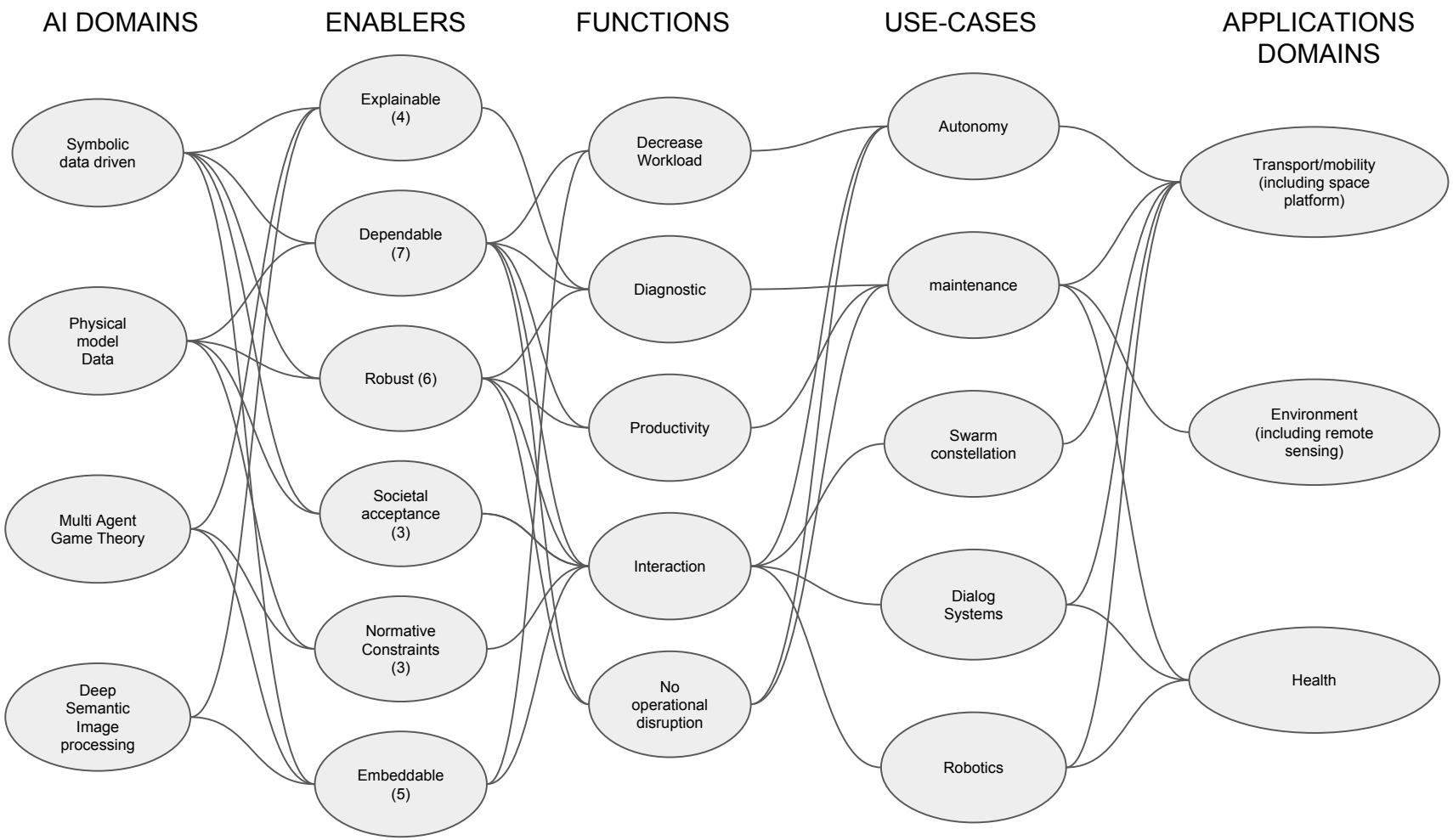
ANITI's research program

- our sectors : mobility/transport (primary), environment, health (ageing) (secondary)
- our core AI project : hybrid AI.
- Integrating (hybrid) AI in : robotics, image processing, language, multi-agent systems.
- applications : certification, autonomy, industry 4.0, predictive maintenance across various fields

A few words on hybrid AI

- Begriffe ohne Anschauungen sind leer, Anschauungen ohne Begriffe sind blind. (Kant)
- methods for solving tasks that exploit a search space that is continuous (physical domains, prception) with an appopriate metric that we can exploit for optimization. and methods that exploit a search space that is discrete without a natural metric that we can exploit easily. Logical (proof and model based) methods.
- Both methods are natural for many tasks—e.g. programming a plane's activity (its trajectory but also how to exploit disposable resources, plane availability) ; programming robots to guide movements in space-time but also plan using BDI.
- how do we combine these two methods to have the best of each ?

Integrative programs in ANITI



Conclusions

- We look forward to a 3AI institute with a 20M euro /year budget
- It will bring important resources to our educational programs to increase the number of students competent in AI at all levels (BA, Master, Ph.D)
- The institute will also allow us to pursue both fundamental research in AI and also link that research with real world applications.
- Such a balance between theory and practice seems particularly appropriate for our currently empirically based AI.