

Artificial Intelligence overview and impacts



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AI is not new

- IFIP TC12

<http://www.ifiptc12.org/working-groups>

AI is not new

- Early enthusiasm (1956-1980?)
- Intensive Knowledge exploration and discovery (1980-1993)
- AI for Knowledge Management (1991)
- Back to ANN
- 4th generation?

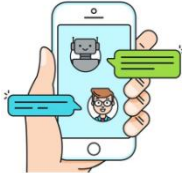
Some applications

- Expert systems – now « embedded »
- Diagnosis
- Process control
- Planning, scheduling
- Optimization (industrial, energy, water...)
- Simulation (eco-design, cyber-physical, country management..)
- Real-time – MAS <https://www.youtube.com/watch?v=wugbZ0Dys6w>
- E-commerce, offer & demand

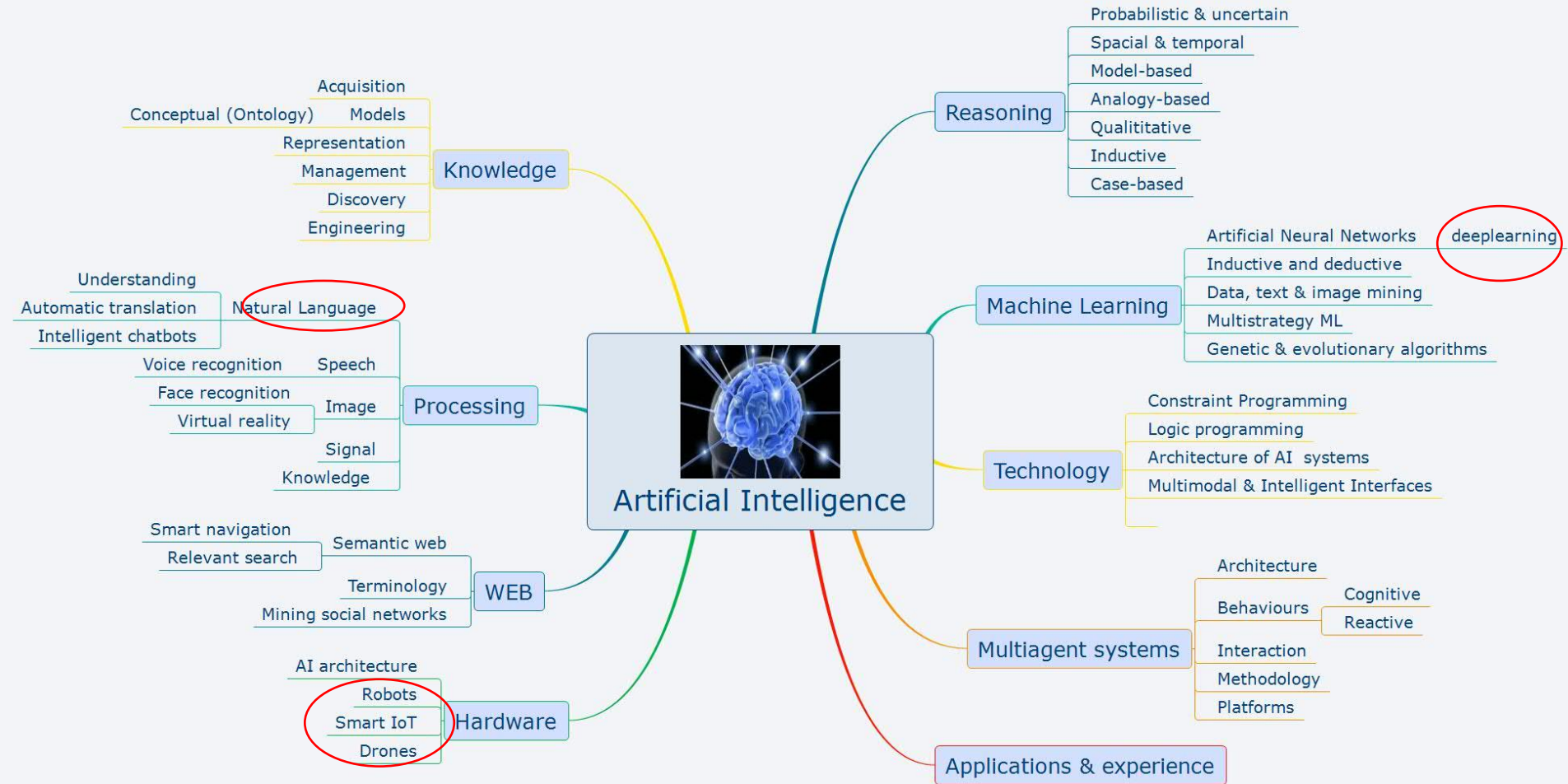


3rd wave of IA

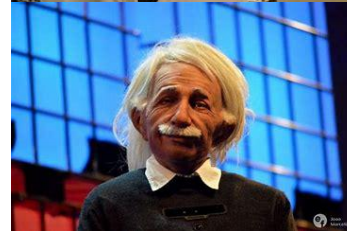
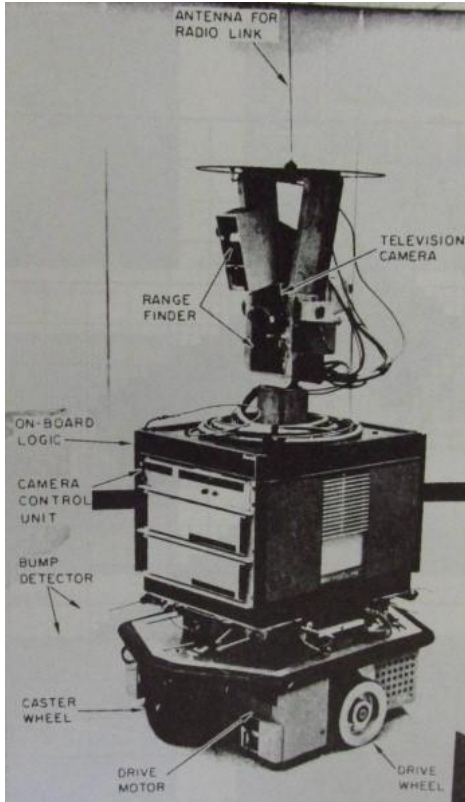


- Motivation: sale more and quicker
Deep learning on navigation data & «client experience »
- “Intelligent” assistants 
- Robots, drones, IoT and autonomous systems
- And ... still real needs & challenges

AI patrimony



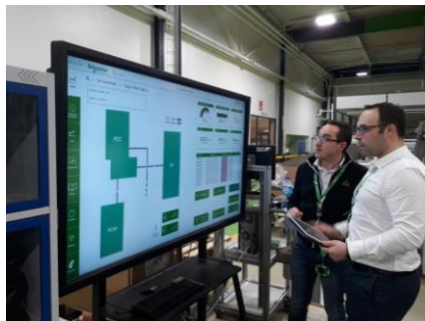
Evolution of robots



<https://www.youtube.com/watch?v=OEIeS12TcWU>

Embedded AI

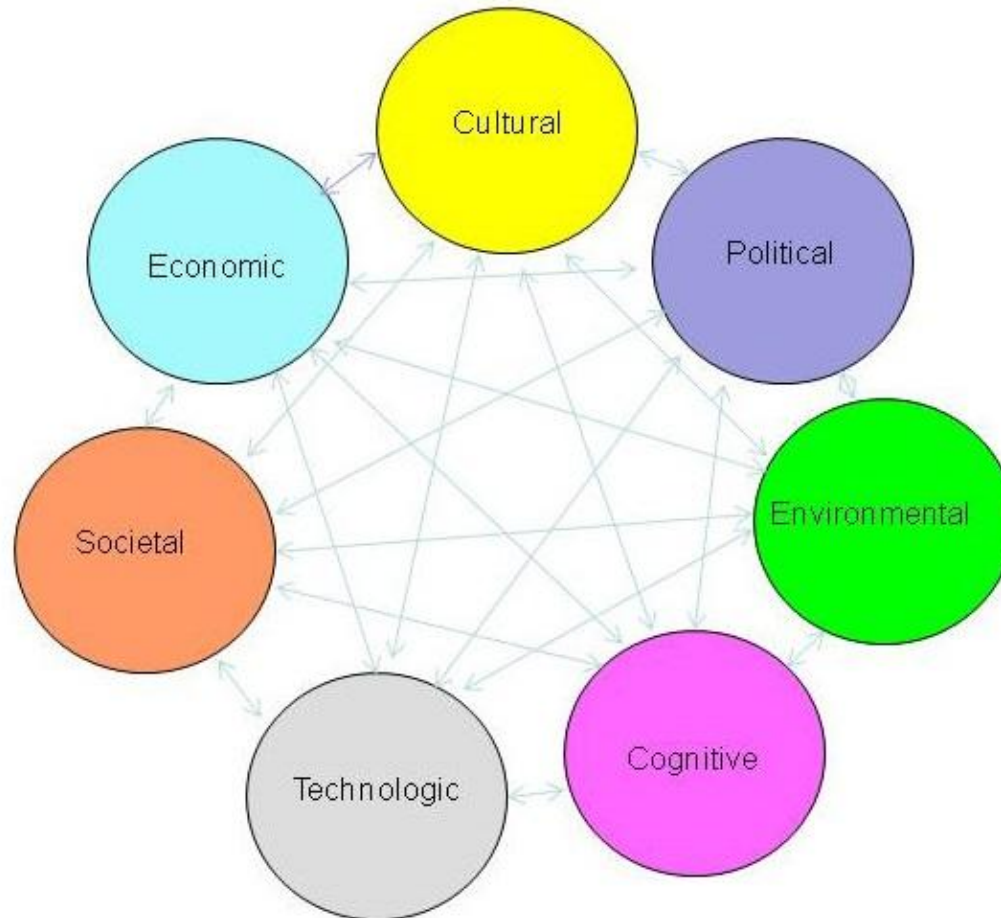
- **D**ecision **S**upport **S**ystems
- Thermal **diagnostics** of buildings, **measurements** of cereal surfaces to evaluate the amount of fertilizer needed, **inspections** of power lines..
- Future factory (Vaudreuil, Safran...**cobots**)



Warnings and risks

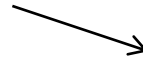
- One technique for all kinds of problem!
- Bugs in autonomous systems, missing data
- Weak mastering of ML programs - AI is programmed to do something beneficial, but it develops a destructive method for achieving its goal
- Bad usages (autonomous weapons...)
<https://www.youtube.com/watch?v=TIO2gcs1YvM>
- “Switching-off” the brain

Multiple impacts of AI



AI and real life –complex problems solving

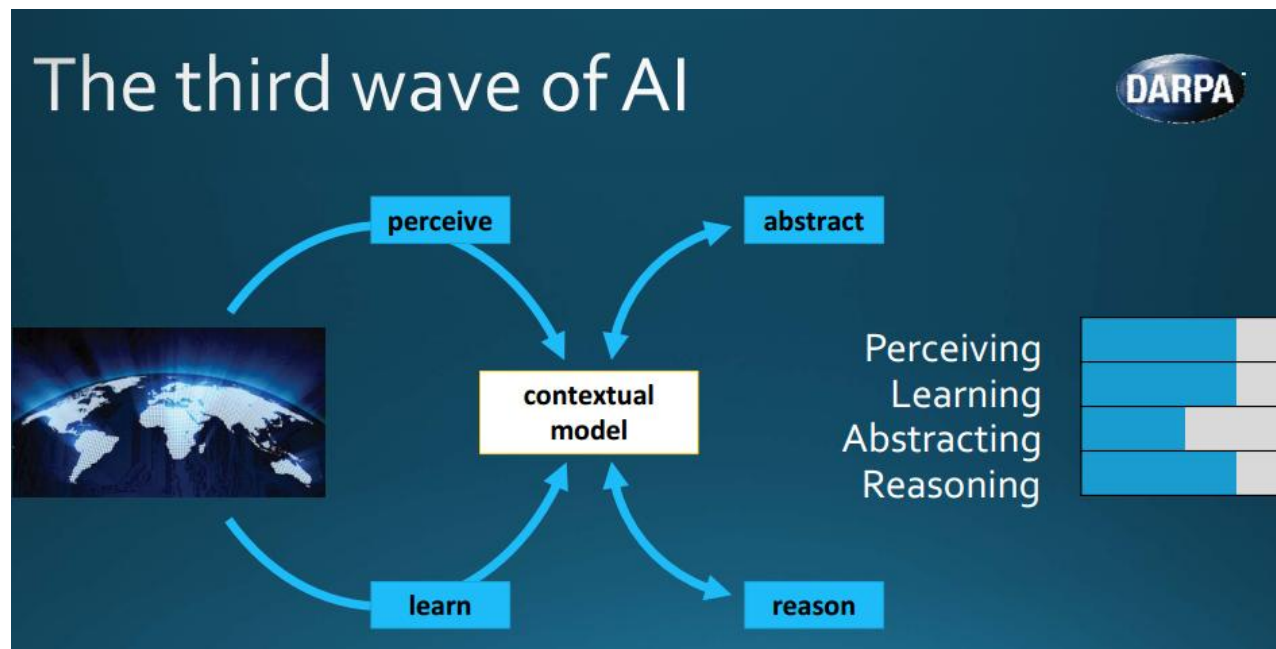
- Optimization
- Sustainability
 - Eco-design
 - Recycling/circular economy
 - Circular energy
- Greener software
- Global security
- Human spare pieces
- Exploring the EU project results



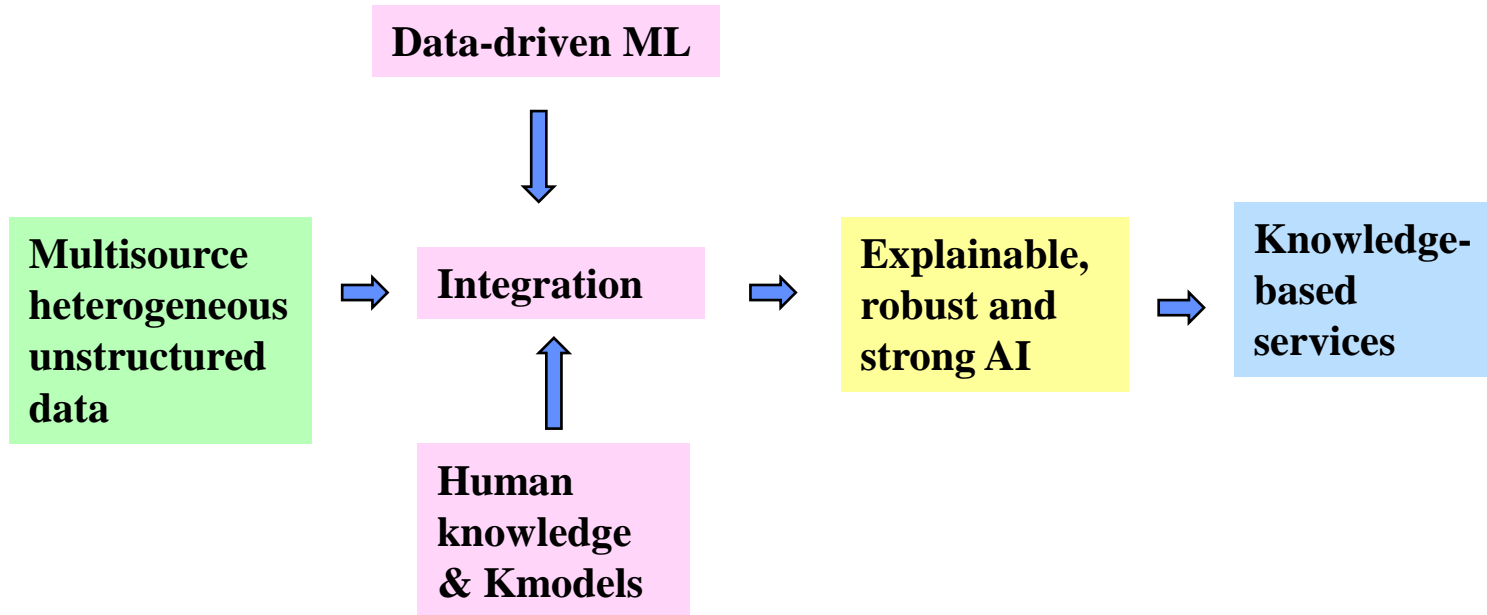
Hybrid systems

From 3rd to 4th generation

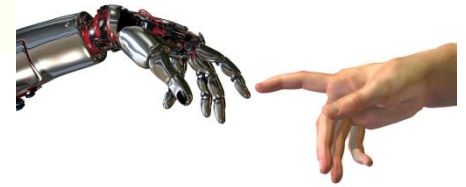
- <https://www.youtube.com/watch?v=N2L8AqkEDLs>



4th generation AI



AI & future – needs or dreams?



- Super-robot or help humans?
- EU/ World regulation for « bad » AI?
- Good AI?
- Enhance human intelligence or understand our brain capacities?
- Alternative problem solving (knowledge)