How Should DOD be Preparing for Artificial Intelligence (AI)

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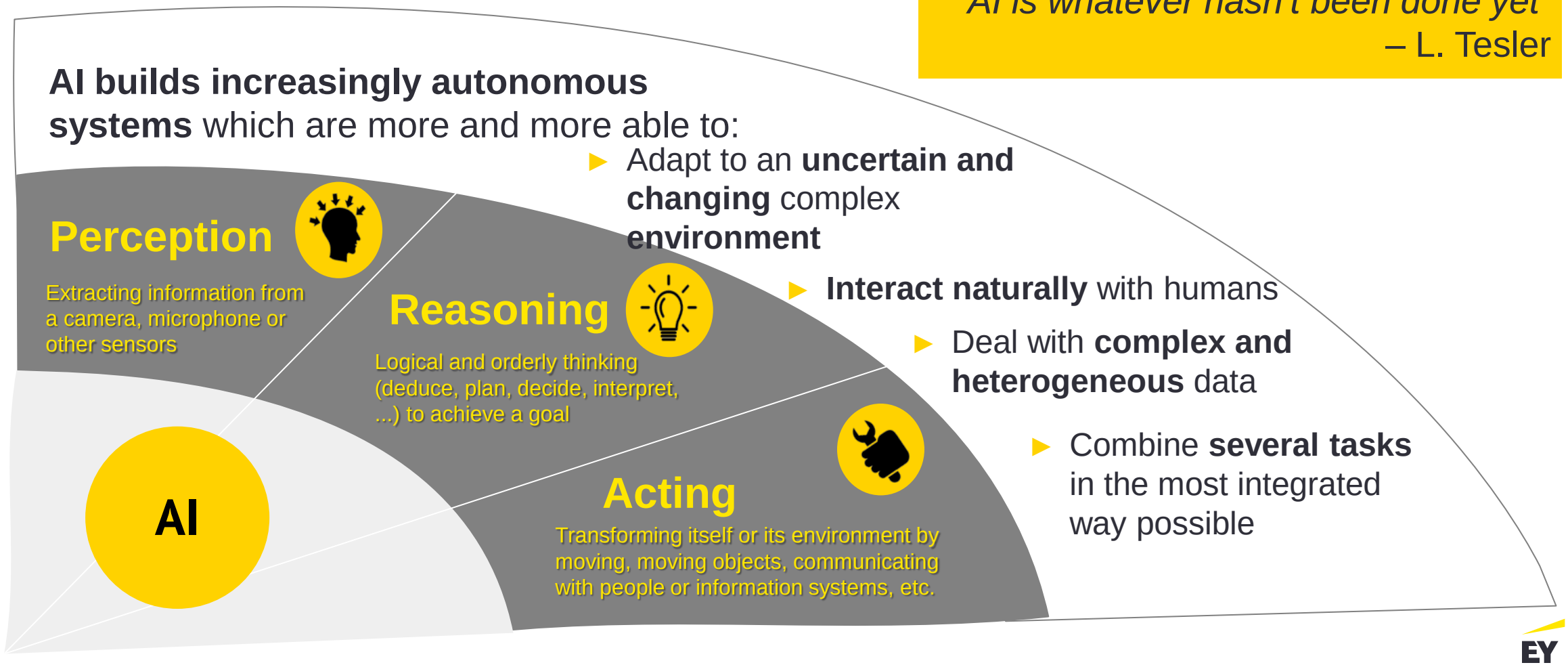
Building a better working world

Defining AI – "the study of the computations that make it possible to perceive, reason, and act"

The boundaries of AI are somewhat subjective and evolve over time
"*AI is whatever hasn't been done yet*"
– L. Tesler

AI builds increasingly autonomous systems which are more and more able to:

- Adapt to an **uncertain and changing** complex **environment**
- **Interact naturally** with humans
- Deal with **complex and heterogeneous** data
- Combine **several tasks** in the most integrated way possible



The key components categorized from algorithms to integrated applications

Algorithms → **Fundamental applications** → **Integrated applications**

Machine Learning

- Supervised learning
- Reinforcement learning
- Unsupervised learning

Natural Language Processing

- Text classification
- Language understanding
- Language generation
- Automated translation

Virtual agents

- Conversational agents
- Virtual assistants
- Software agents

Reasoning

- Problem Solving
- Automated planning and scheduling
- Logical inference
- Knowledge engineering

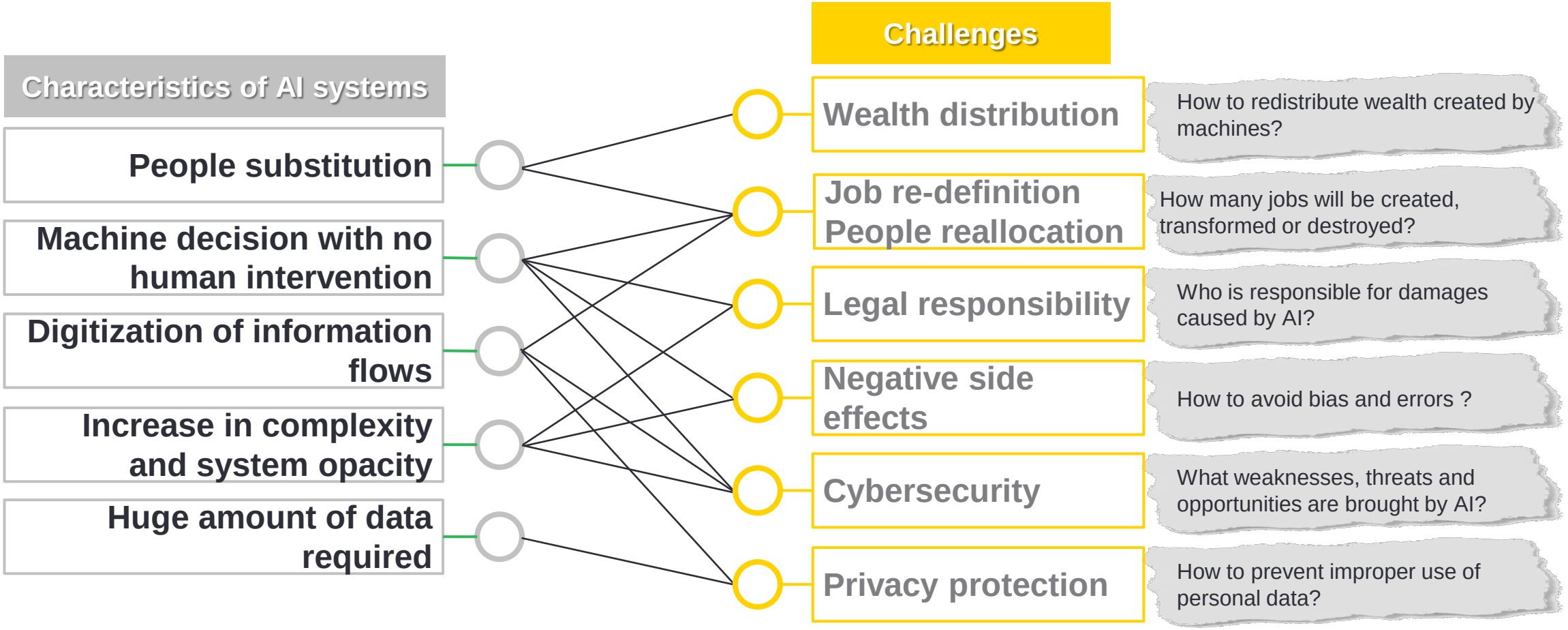
Machine perception

- Computer vision
- Speech processing

Autonomous objects

- Autonomous vehicles
- Robots

An unqualified good? These applications may have significant legal and social implications



The World Economic Forum noted that AI technologies could displace 75 million mundane or repetitive jobs.

But they could also create 133 million new jobs, which would be more skilled or creative

… but the impact of AI is being felt and will increase

1 Spectacular improvements in AI performances

Thanks to new technologies and the increase in data generation significant improvements in AI research are made

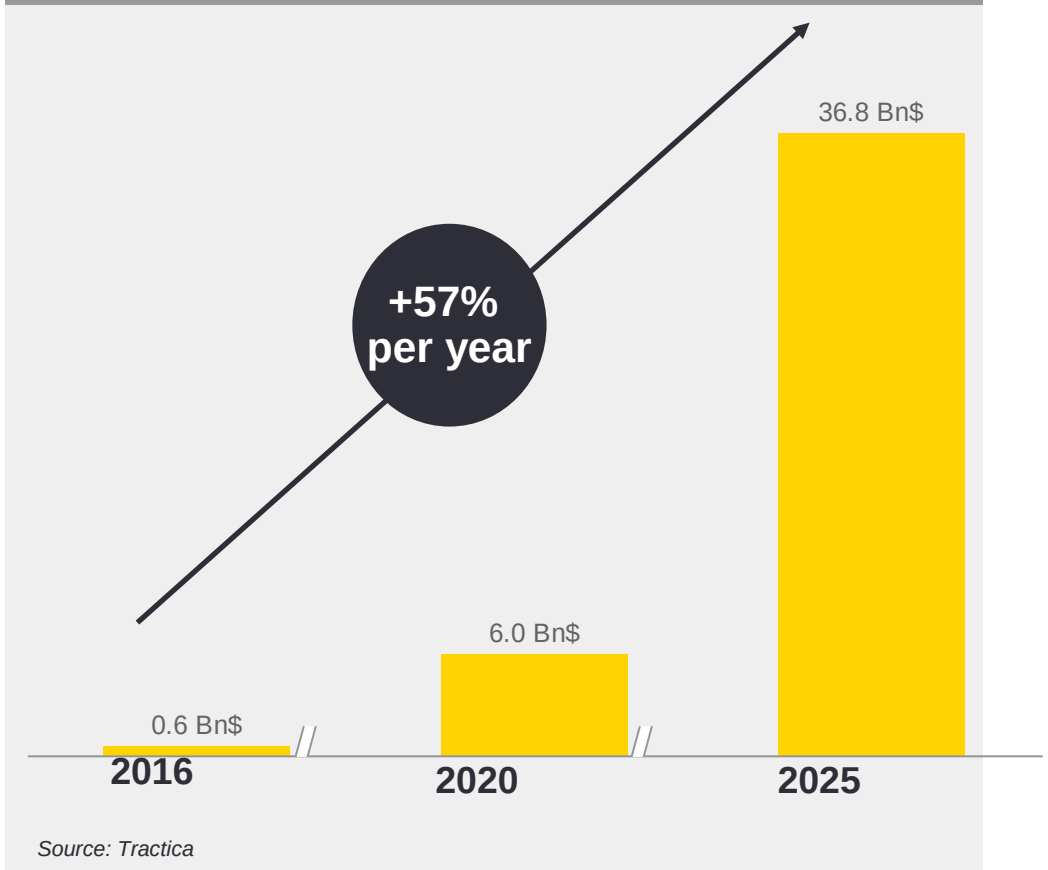
2 Increasing adoption of AI in business and daily life

The performance improvements brought especially by deep learning has enabled the development of more sophisticated applications fit for business and daily life use

3 Growing awareness of AI importance and social implications

The emergence of daily life applications of AI have risen awareness of its importance for the future and its social implications

Projected global AI market revenue



Source: Tractica