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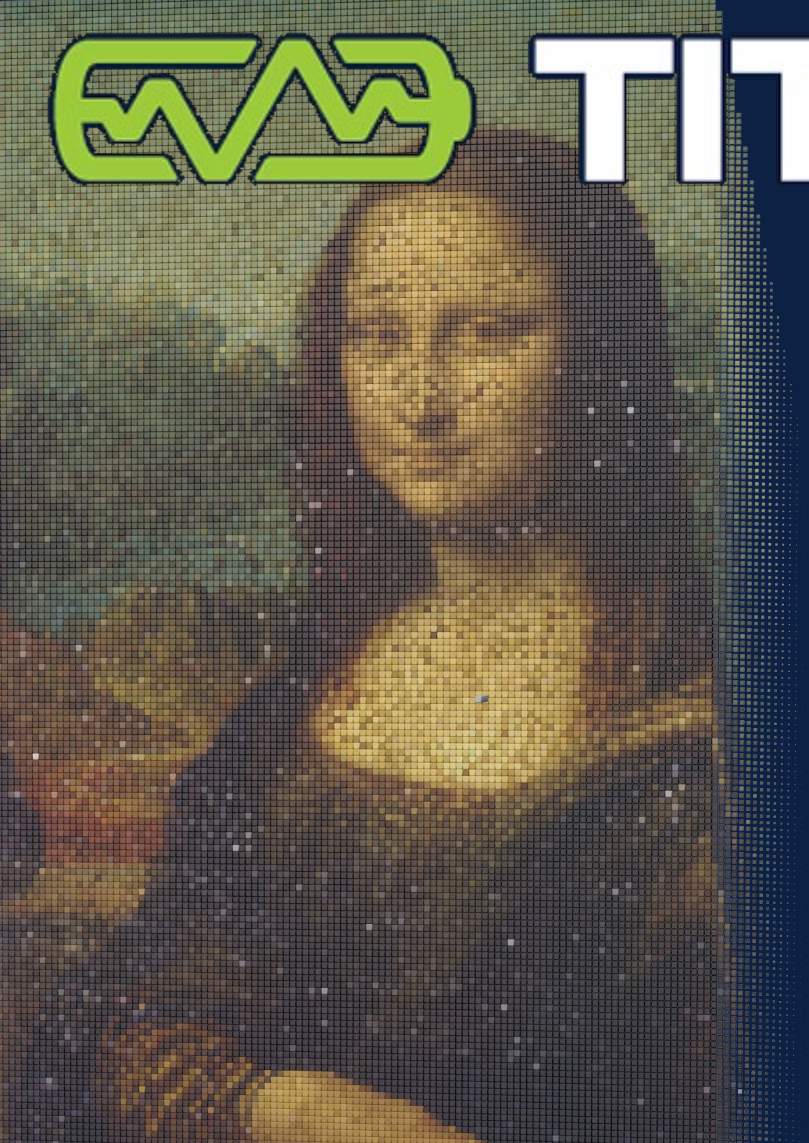
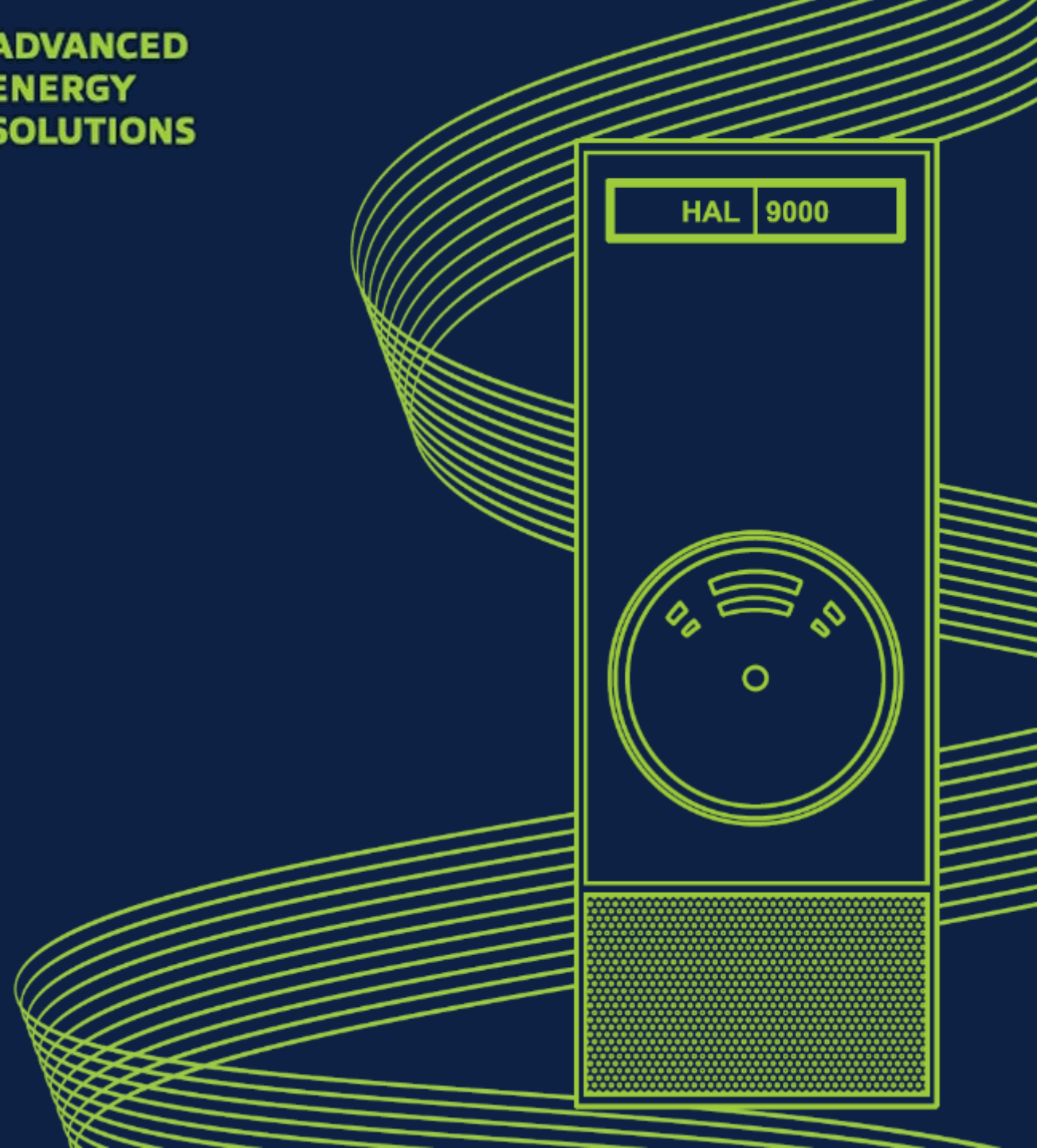
SOLUTIONS





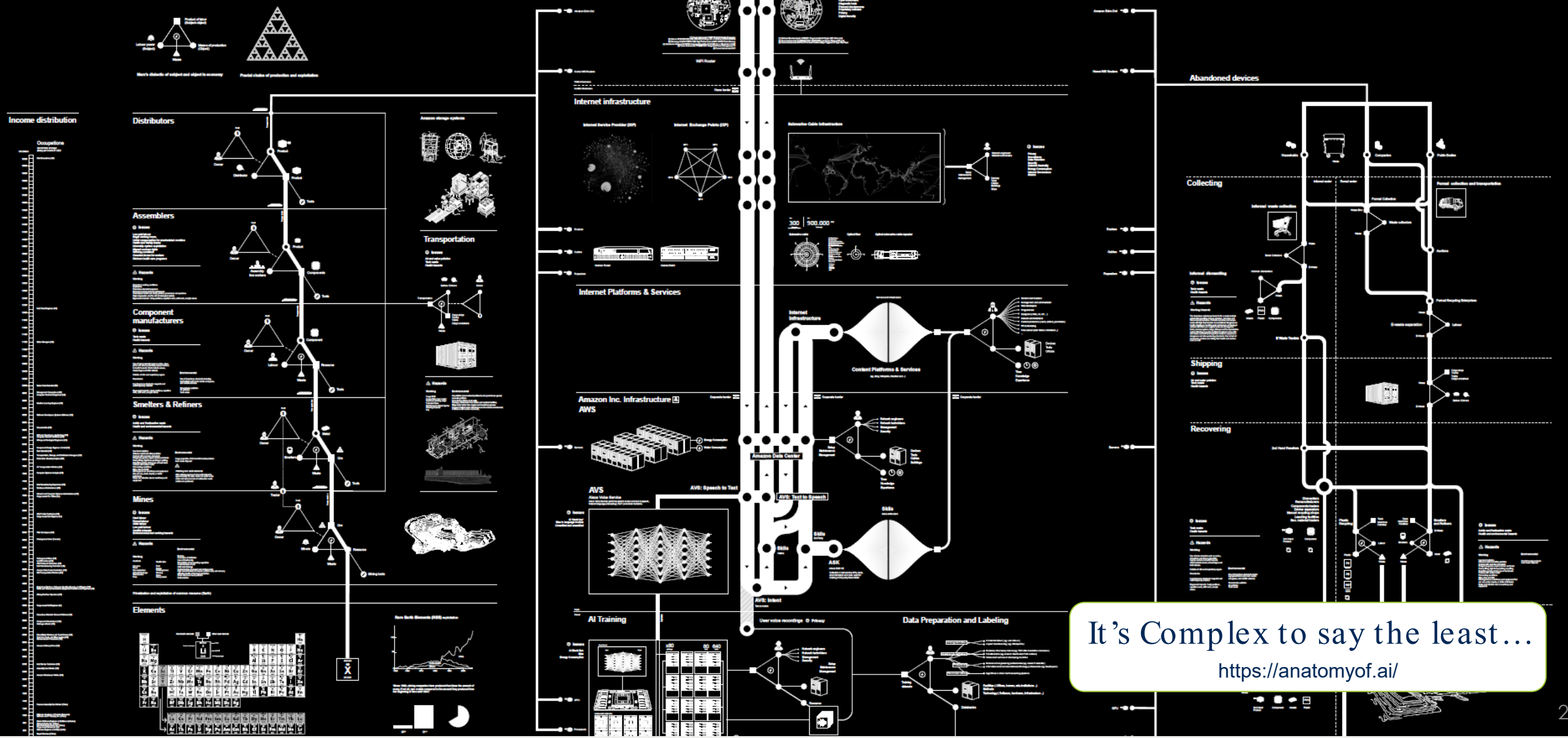
NAATBatt

20th February 2025

Shawn Murphy – CEO / CTO

Anatomy of an AI system

An anatomical case study of the Amazon echo as a artificial intelligence system made of human labor



It's Complex to say the least…

https://anatomyof.ai/

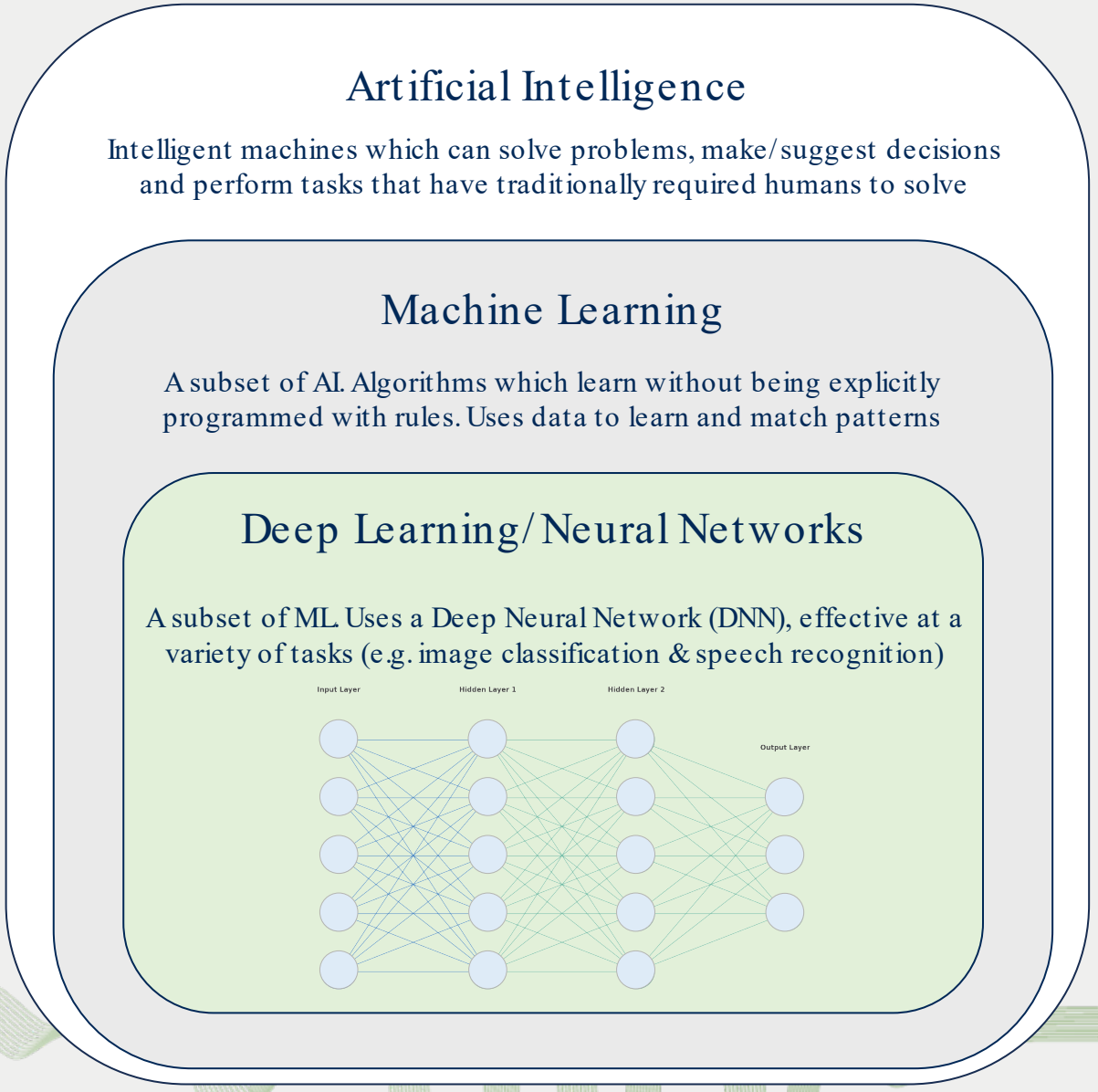
Terminology and Topography (A slice of AI)

Artificial Intelligence (AI) - a catchall term used to describe "Intelligent machines" which can solve problems, make/suggest decisions and perform tasks that have traditionally required humans to do. AI is not a single thing, but a constellation of different technologies.

Machine Learning (ML) - a subfield of artificial intelligence. Humans combine data with algorithms (see here for a list) to train a model using that data. This trained model can then make predications on new data (is this picture a cat, a dog or a person?) or decision-making processes (like understanding text and images) without being explicitly programmed to do so.

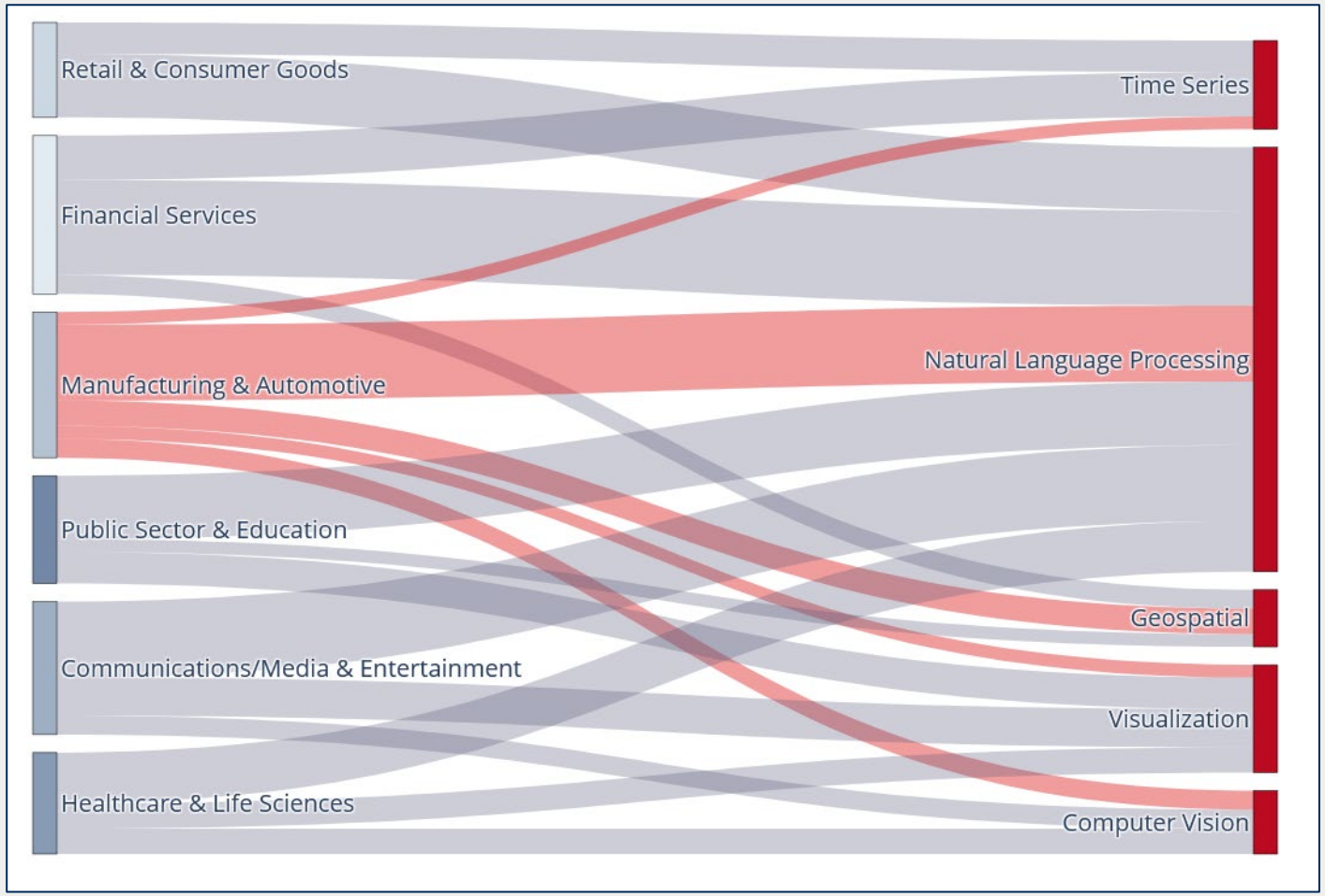
Machine learning algorithms - computer programs that adjust themselves to perform better as they are exposed to more data. The "learning" part of machine learning means these programs change how they process data over time. In other words, a machine learning algorithm can adjust its own settings, given feedback on its previous performance in making predictions about a collection of data (images, text, etc.).

Deep Learning/Neural Nets – a subfield of machine learning. Neural networks make up the backbone of deep learning. (The "deep" in deep learning refers to the depth of layers in a neural network.) Neural nets are effective at a variety of tasks (e.g., image classification, speech recognition). A deep learning neural net algorithm is given massive volumes of data, and a task to perform - such as classification. The resulting model is capable of solving complex tasks such as recognizing objects within an image and translating speech in real time. In reality, the neural net is a logical concept that gets mapped onto a physical set of specialized processors.



AI Usage in Industry

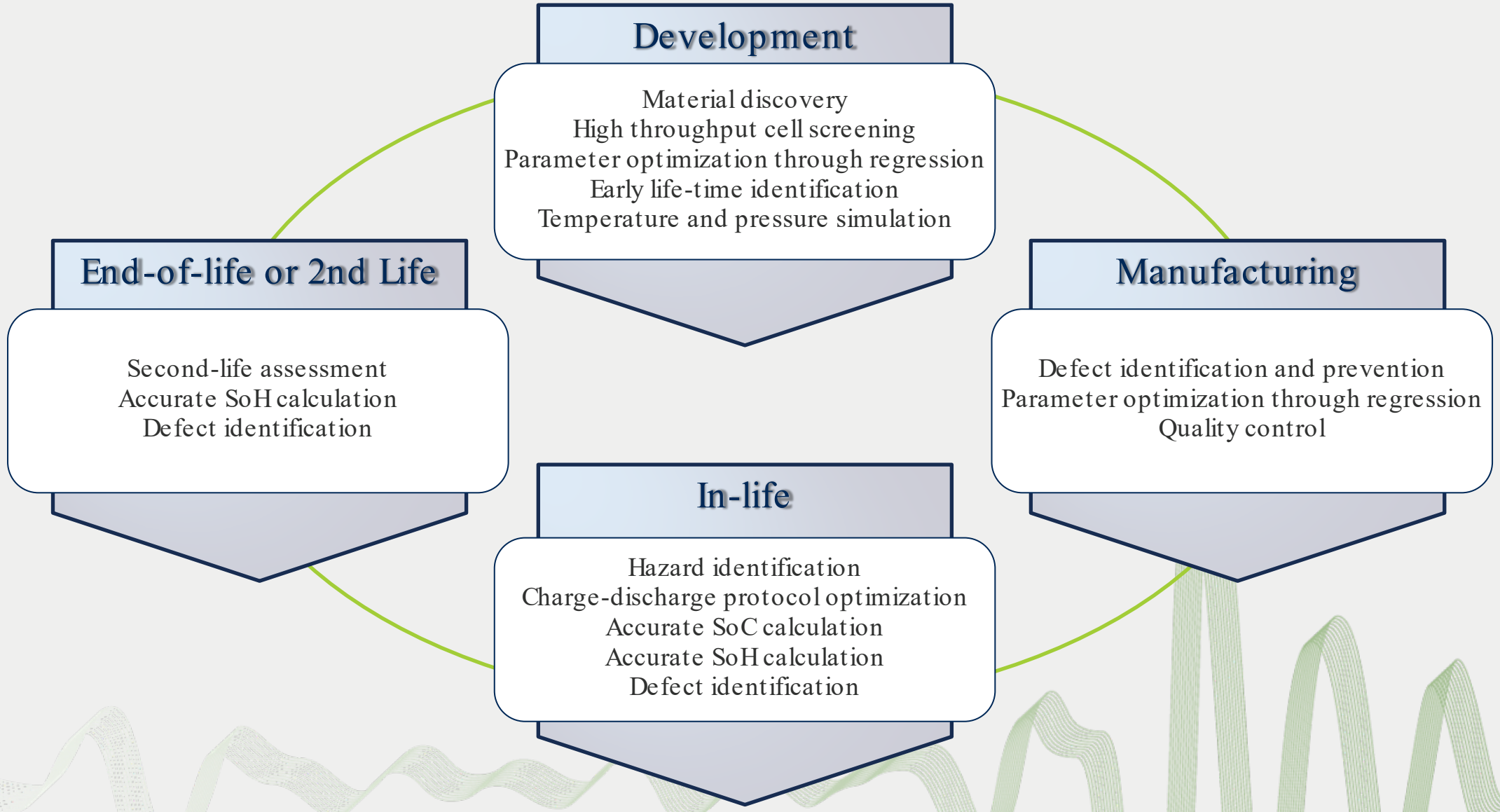
Types of AI/ML applications by industry



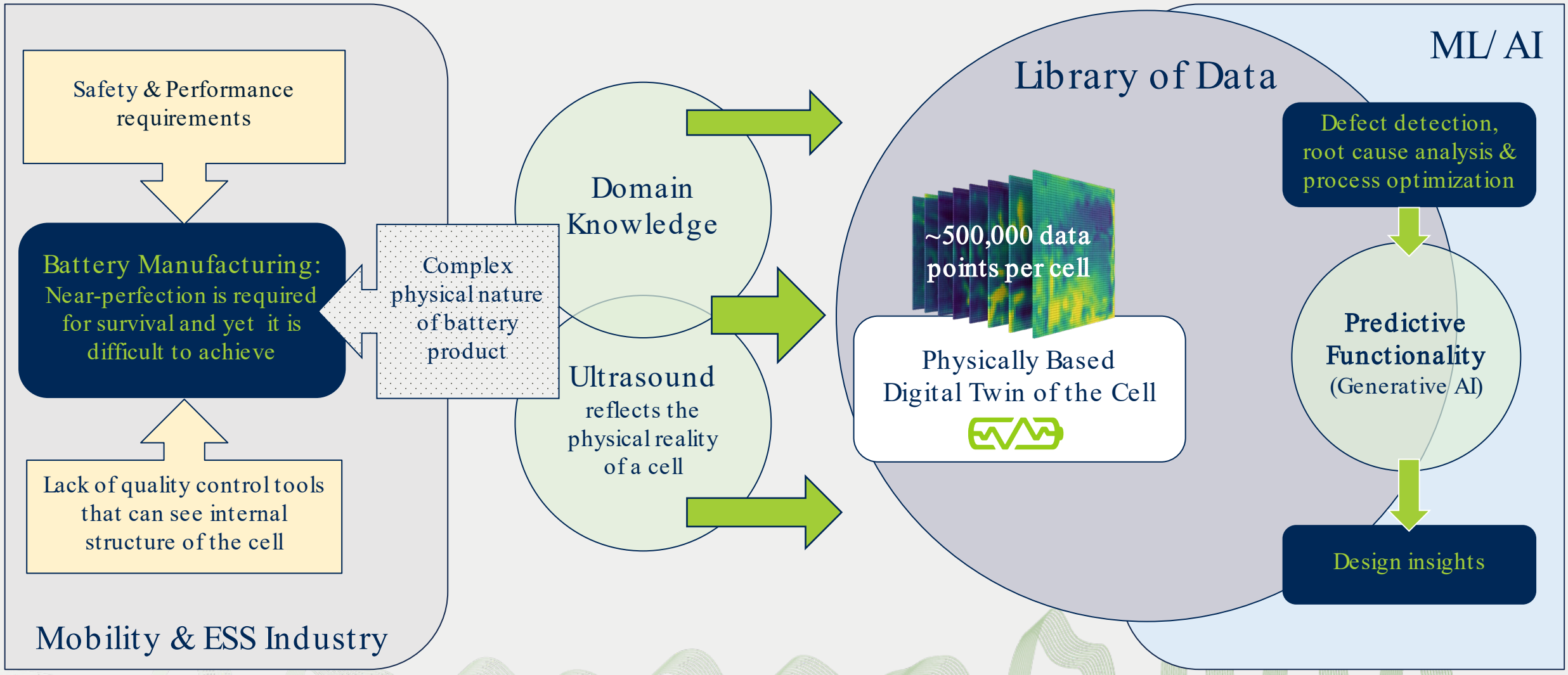
Top Use Cases in Manufacturing

- Supply Chain Management
- Cobots (collaborative robots)
- Warehouse Management
- Assembly Line Optimization
- Predictive Maintenance
- New Product Development
- Performance Optimization
- Quality Assurance
- Streamlined Paperwork
- Demand Prediction
- Order Management
- Connected Factories

Opportunities for AI are Throughout the Battery Value Chain



Addressing Industry's Pains: Physically Based Digital Twin



BATTERY RUNNER

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