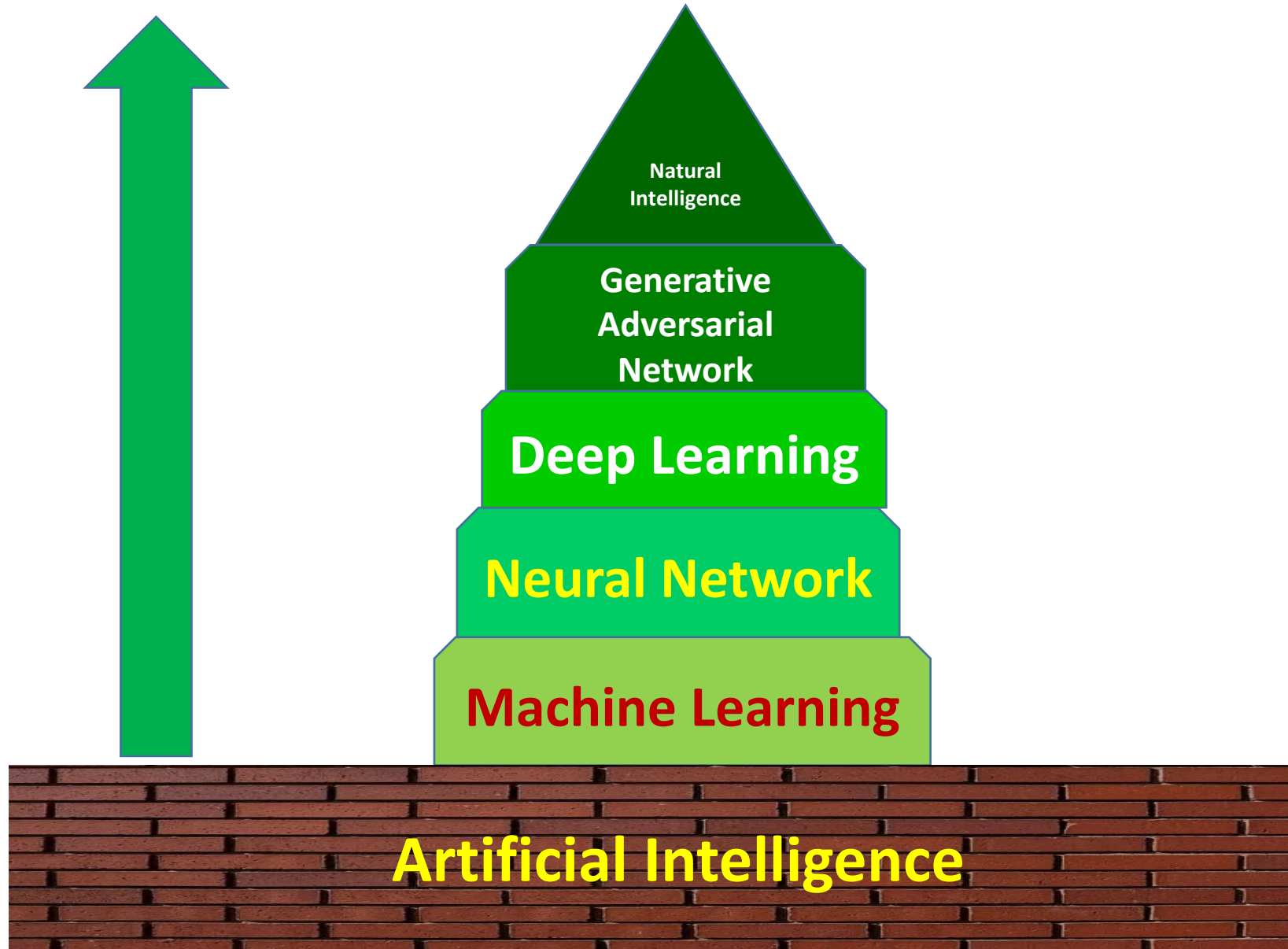
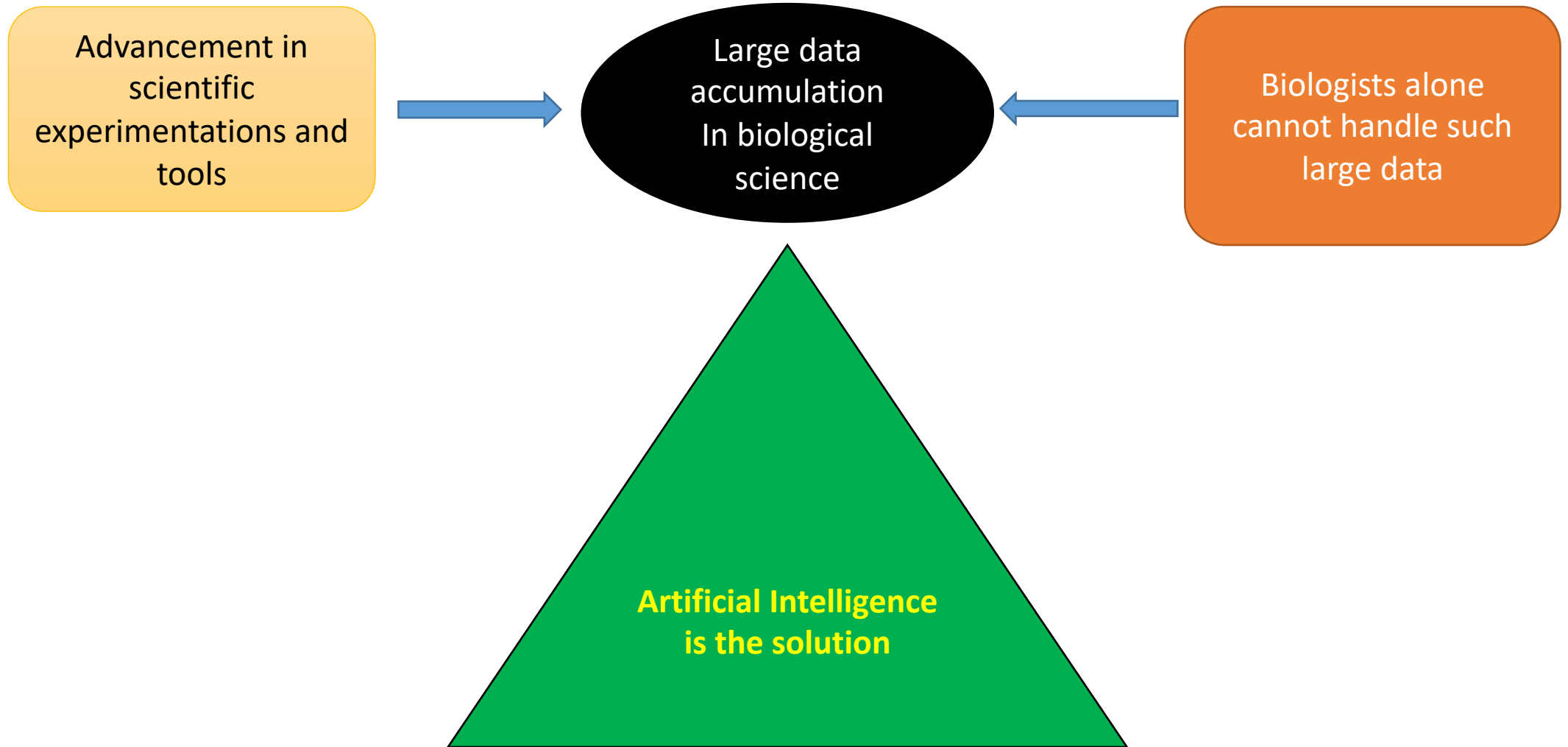
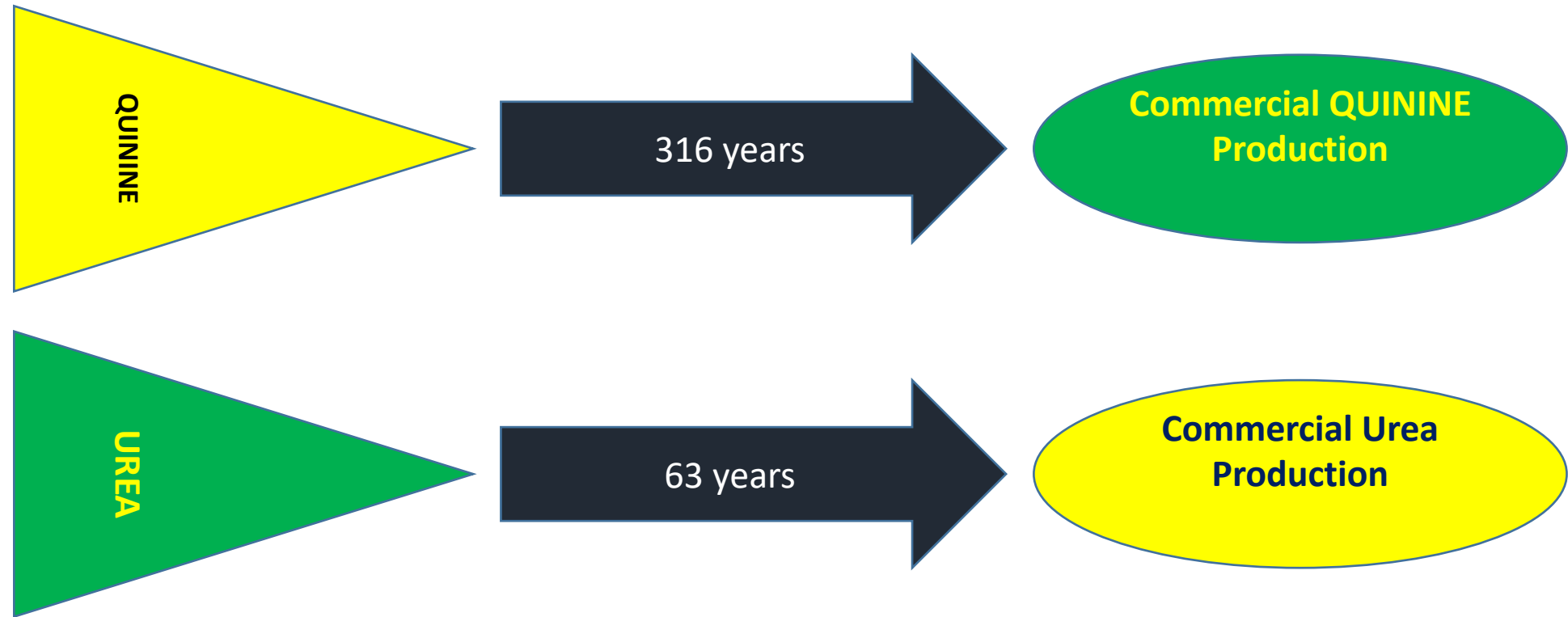


APPLICATIONS of ARTIFICIAL INTELLIGENCE IN BIOLOGY



Applications of Artificial Intelligence in Biology





AI can help in reduction in this time lag from centuries to days



For a biologist AI application can be challenging to grasp

AI specialists enter
for a collaboration
and accelerate
speed of research

That's why AI and biologists need to collaborate!



What is AI?

Artificial intelligence (AI): A branch of computer science dealing with machines to carryout human tasks

Machine learning enables computer to effectively learn from data without specifically being programmed to do so

Deep Learning within ML seeks to deal with information with logical structures similar to humans drawing conclusions



GAN

Artificial intelligence:

- ❖ AI allows machines to perform tasks traditionally done by humans at lightning speed.
- ❖ Machine learning (ML) is a subset of AI that enables computers to learn from data,
- ❖ Deep learning(DL) is a subset of ML that seeks to process information similarly to humans.
- ❖ GAN is a subset of ML model in which two neural networks compete with each other by using deep learning methods to become more accurate in their predictions.
- ❖ In biology, AI helps to automate and simplify image analysis, predict protein structures, and aid drug discovery.

Why Should Researchers adopt AI

- **Novel Hypothesis Generation**
- **Enhanced Data Analysis**
- **Predictive Analytics in Research**
- **Accelerated Discovery**
- **Disease Diagnosis and Prognosis**
- **Drug Discovery and Development**
- **Smart Agriculture**
- **Environmental Monitoring**
- **Automated Research Processes**

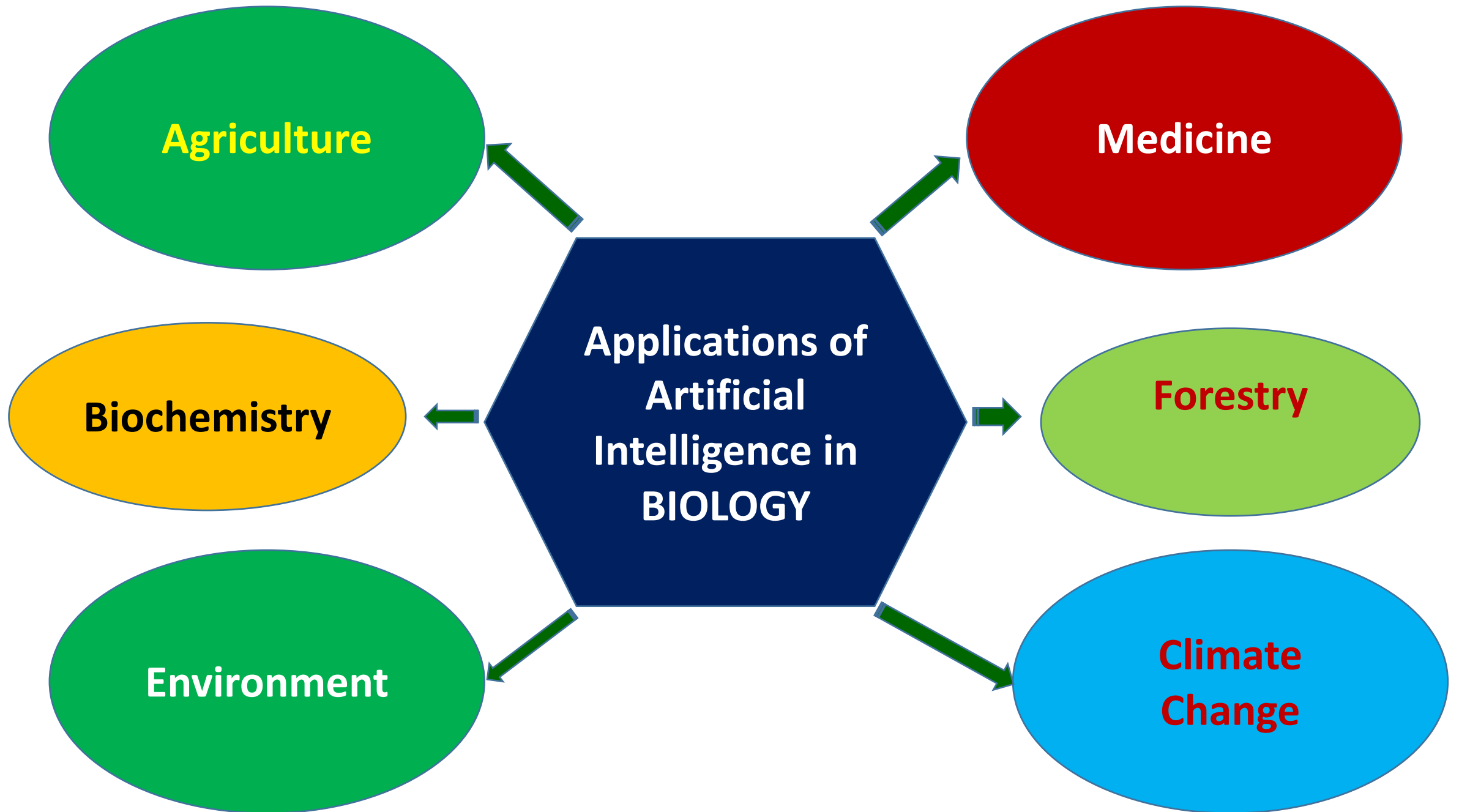
Why Should Researchers Care About Artificial Intelligence?

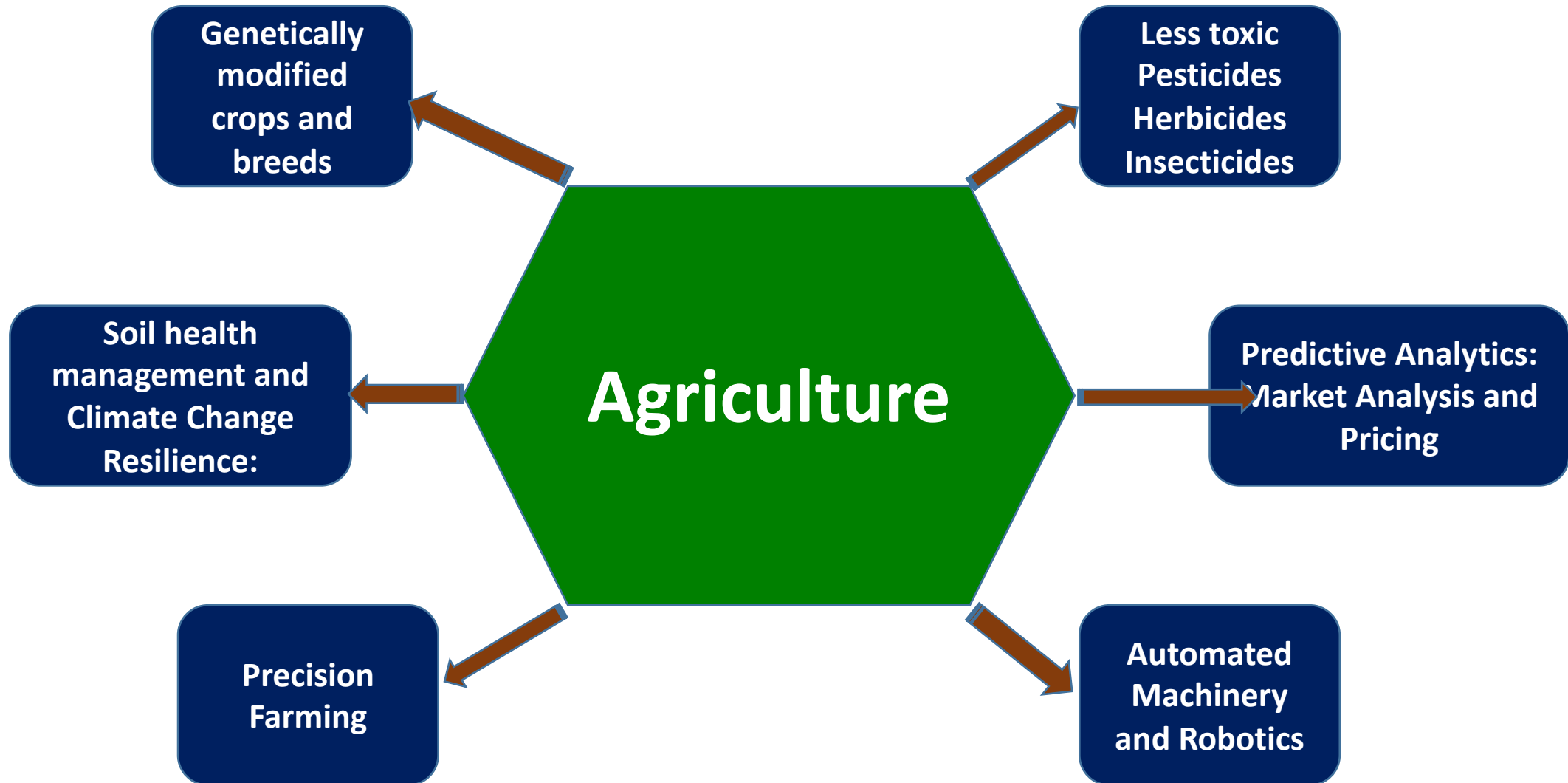


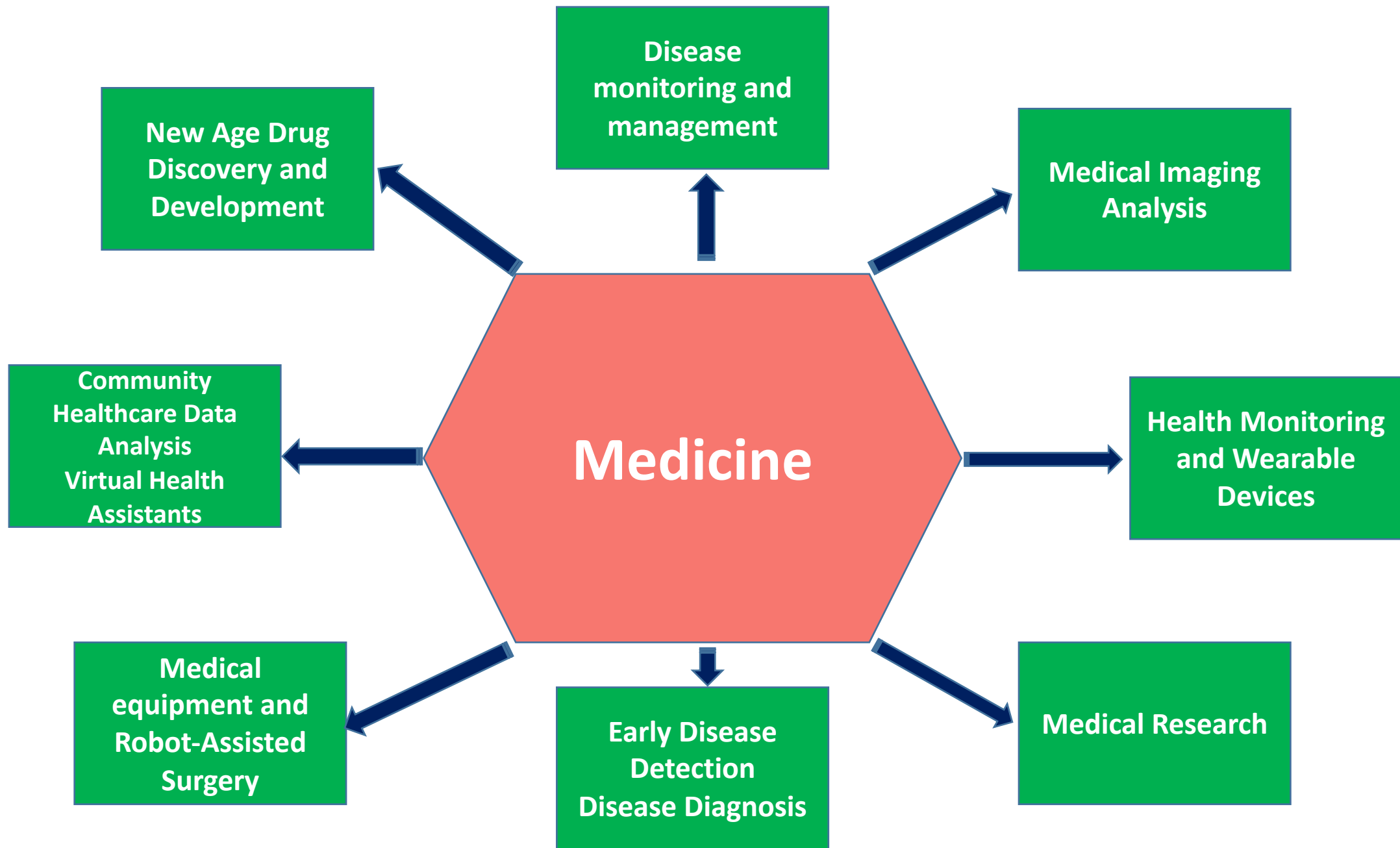
In big data, problems are getting harder to solve due to the enormity of the data that needs processing—AI helps with this!

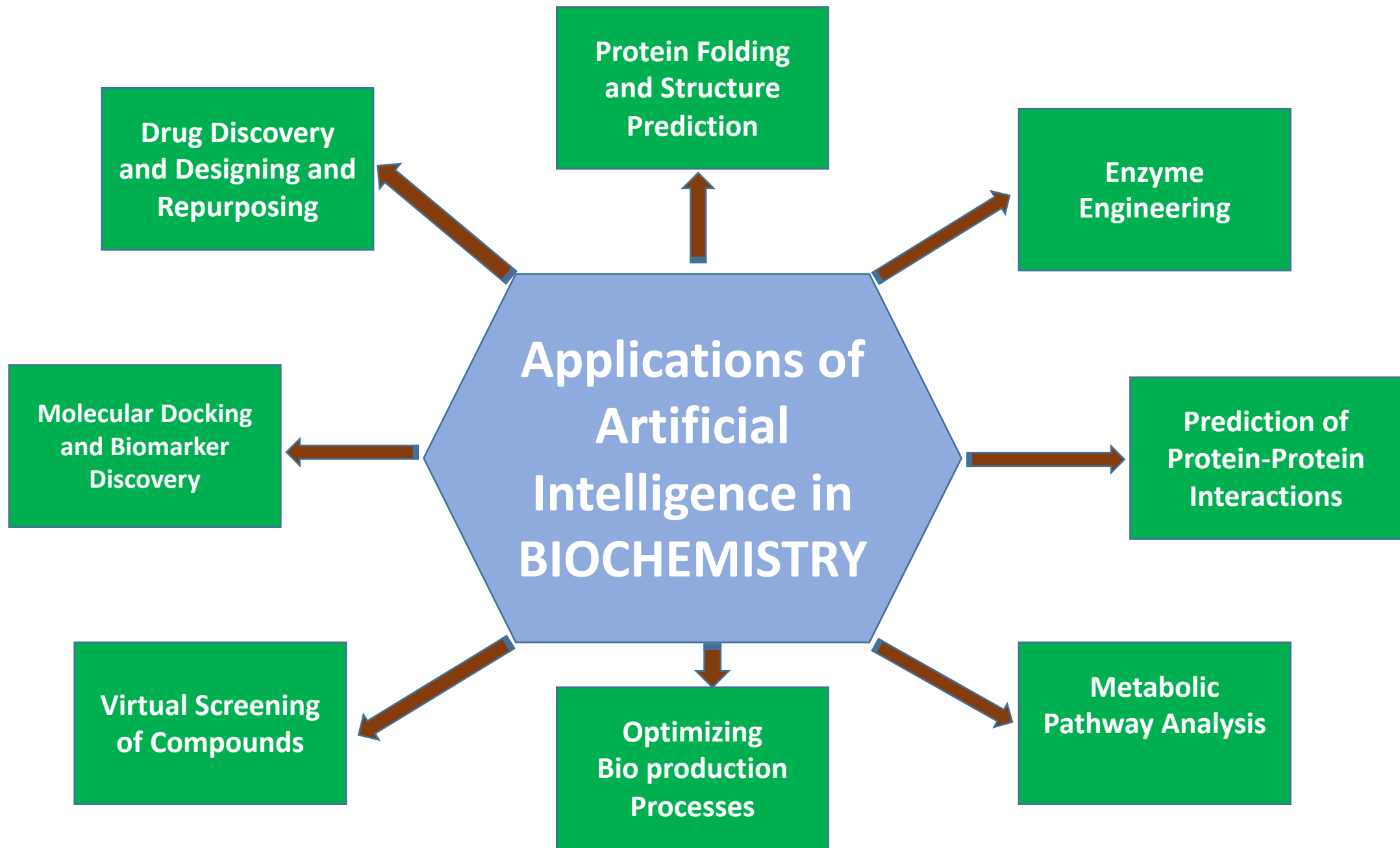
In a collaborative mode, biology researchers can focus on the bigger picture rather than analyzing thousands or millions of individual images or data.

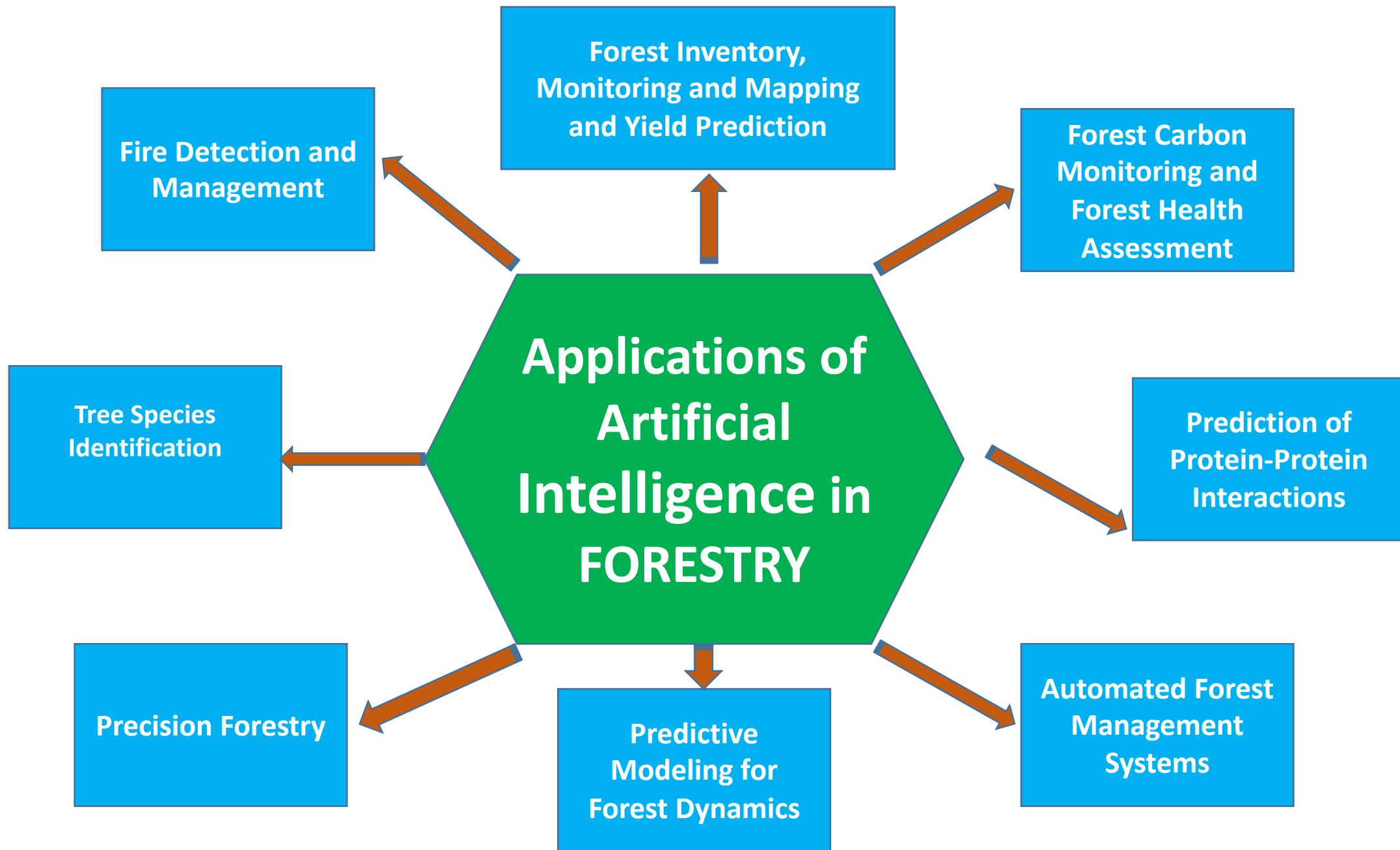
In a research world of less funding and more competition, AI can be vital to staying ahead of the game.

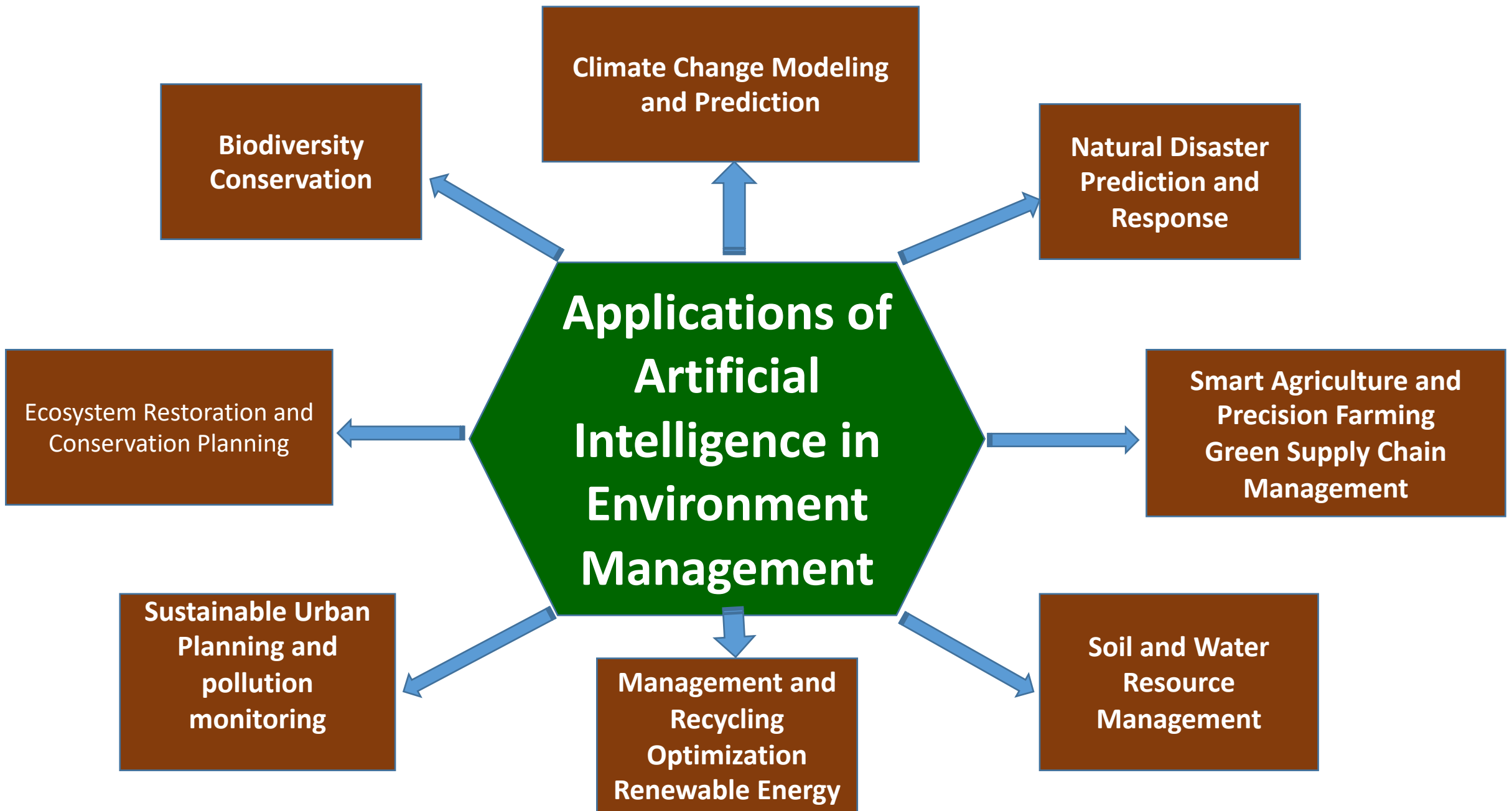


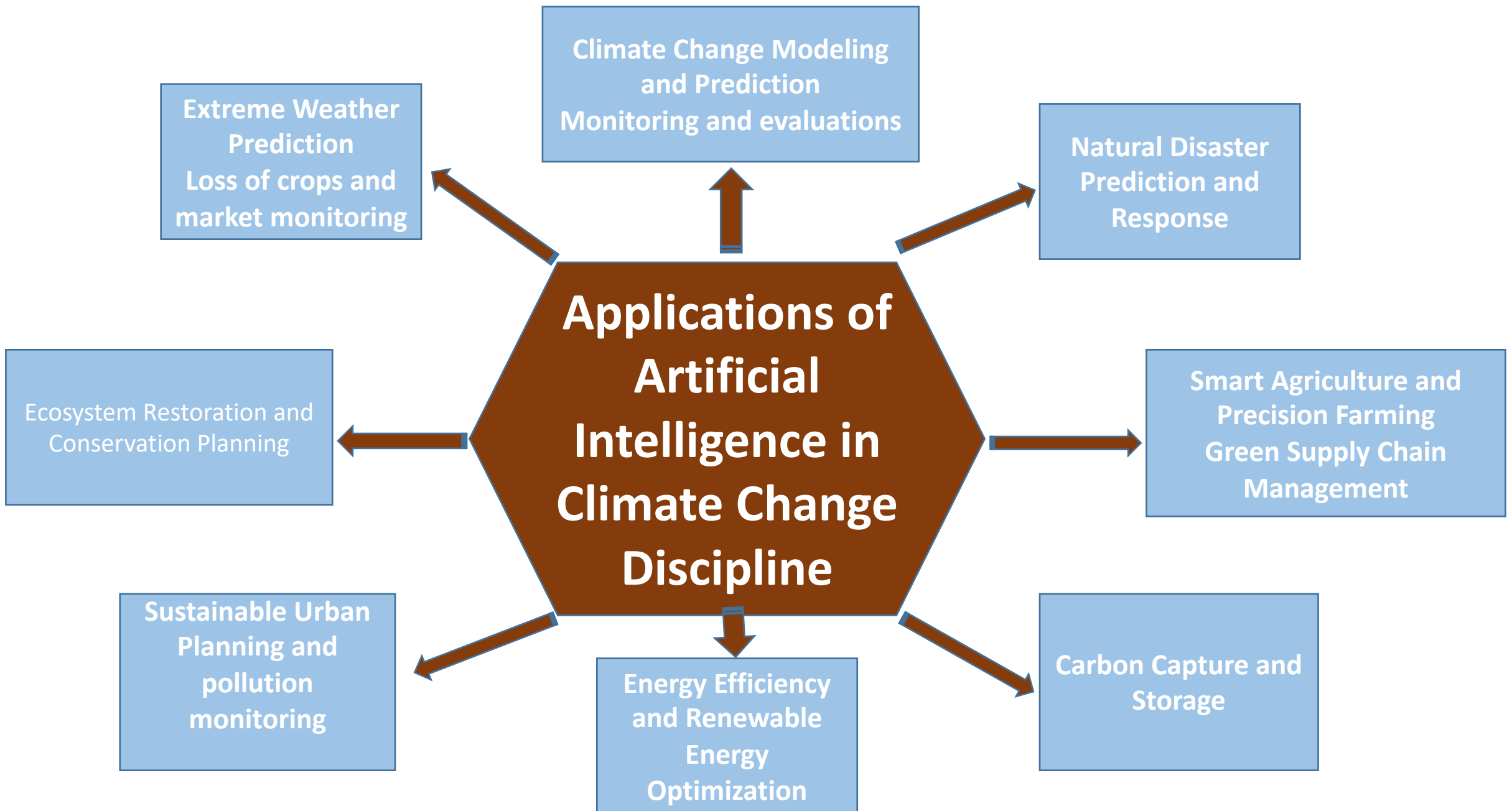






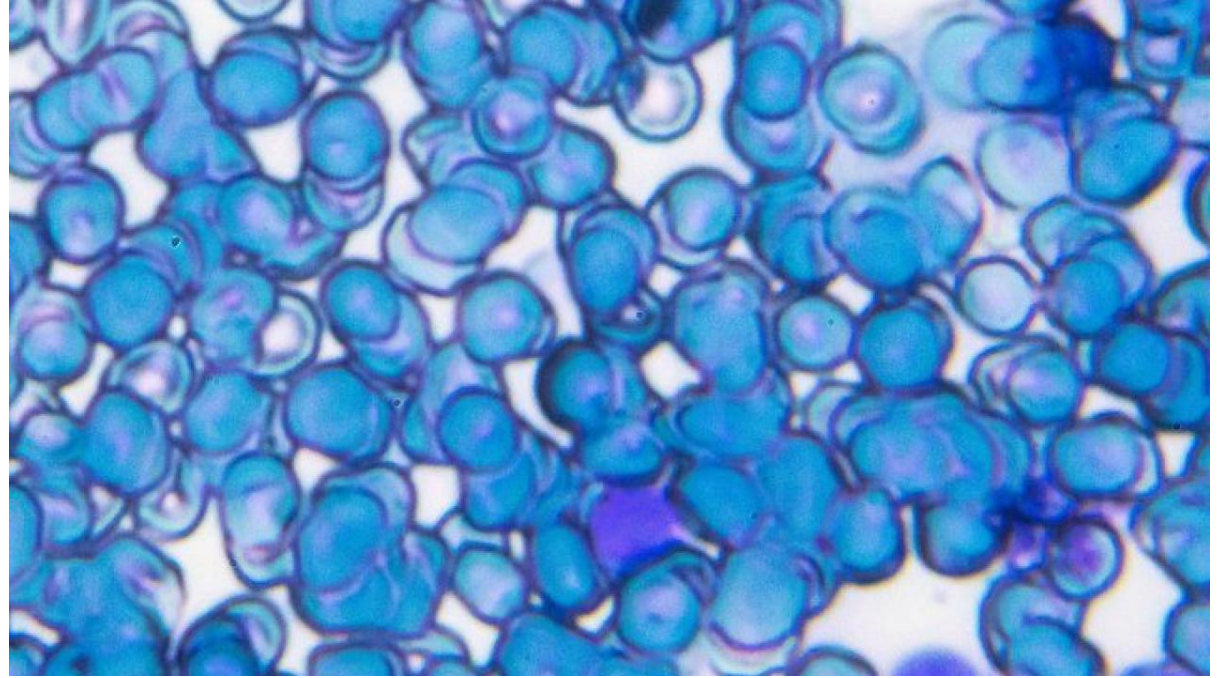
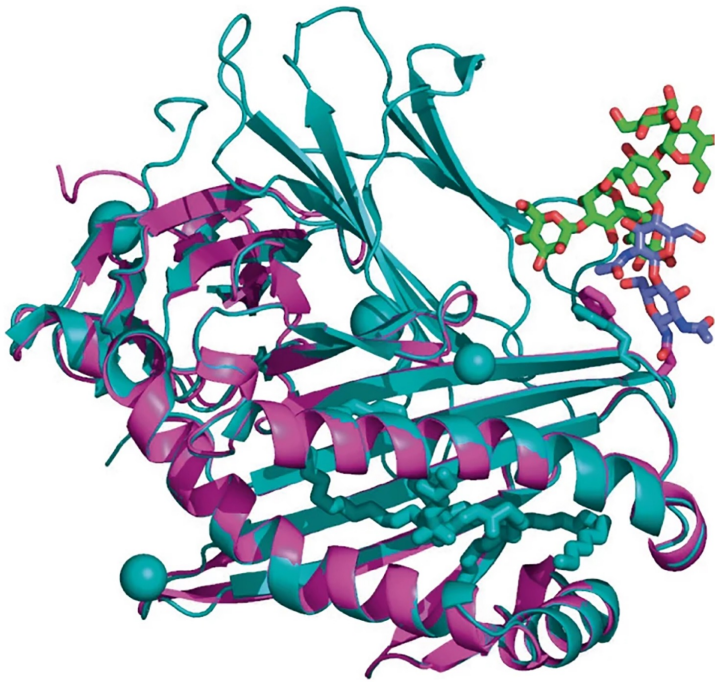






A new era has begun in biological sciences with the application of Artificial intelligence (AI)

- ❖ We reached a level in AI that we can currently recognize objects and make decisions using many of the cognitive and perceptual abilities of live systems.
- ❖ Through this we can obtain innovative solutions to complex challenges.
- ❖ We are leaping ahead in genomics, drug discovery, disease diagnosis, Agriculture and ecological conservation.
- ❖ Through AI-powered algorithms today we can analyze massive biological datasets, predict protein structures, identify genetic patterns, and optimize drug development processes. It helps in new generation crop varieties that does not need pesticides and produce more crop per drop of water
- ❖ It helps in understanding complex biological processes, and enhances biodiversity conservation efforts, canopy carbon capture and climate change. With its capacity for data processing and pattern recognition, AI has begun to unravel the mysteries of biology and advance human health and environmental sustainability.



Source:
<https://www.pnas.org/doi/full/10.1073/pnas.2202107119>

<https://cancer.ucsf.edu/news/2022/12/09/how-ai-found-the-words-to-kill-cancer-cel>

Investment in this area will solve societal problems
and yield profits

Thank You