

THE INTELLIGENT AI CONSUMER

Artificial Intelligence (AI) fueled by real-world healthcare data has yet to be fully leveraged by biopharmaceutical companies but is poised to revolutionize their business strategies.

For example, one can use AI to find healthcare professionals who are currently managing yet-to-be-diagnosed patients with difficult-to-diagnose diseases and identify impactful clinical networks that can be leveraged to change clinician behavior. To realize the value, business leaders must become intelligent AI consumers.

In 1949, economist Benjamin Graham published *The Intelligent Investor*, which elevated the concept of making informed investment decisions in a complex marketplace where hype often prevails over substance. He recommended prudence rather than gambling on the next big idea. Since Graham's time, technology has transformed the informatics business landscape with the emergence of inexpensive computing platforms and social media, the expansion of the internet and handheld devices, and the commoditization of information. In biopharmaceutical marketing, it comes down to unlocking the value in this vast interconnected network.

The stakes have never been higher when it comes to finding ways to use this information in support of patient care, building shareholder value, and expanding market share.

More recently, the advent of inexpensive AI platforms has offered the prospect, if not the necessity in a highly competitive landscape, of partnering in business collaborations to understand this flood of information. Faced with the certainty that one must get involved in the AI marketplace, how does one proceed to assess potential business partners, find value, and avoid hype?

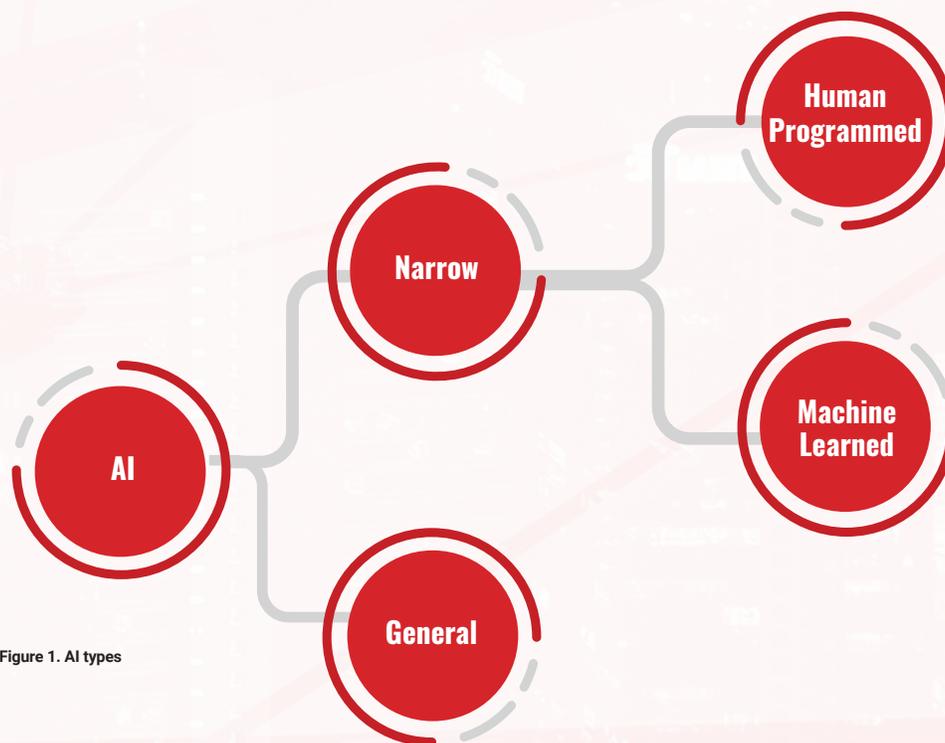


Figure 1. AI types

Before investing, it's important to understand what AI actually is and what an experienced AI provider can offer beyond access to the technology. AI is a broad, rapidly changing field of research, yet the kind of product you'll likely need to focus on represents a specific subset of AI. The definition of AI is "the capability of a machine to imitate intelligent human behavior." At a broad level, there are 2 types of AI: general and narrow (See Figure 1).

General AI doesn't exist yet; narrow AI is the only product in the marketplace today. Within narrow AI, intelligence is either programmed by human beings or learned. The latter, known as machine learning (ML), is the modern rendition of narrow AI prevalent in today's marketplace.

Narrow AI: "Machine intelligence that equals or exceeds human intelligence for specific tasks."



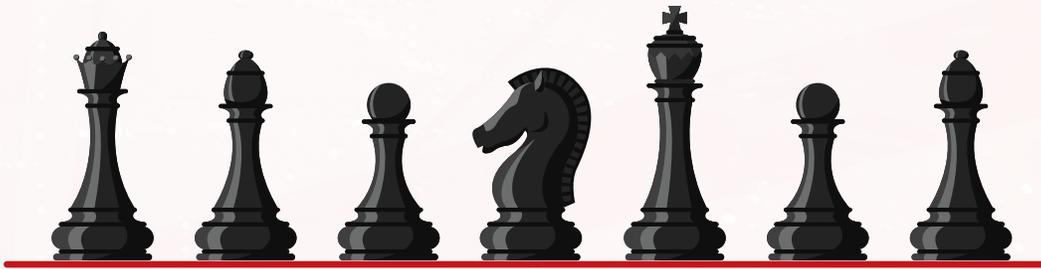
THE INTELLIGENT AI CONSUMER

Programmed vs. Learned AI

Narrow human programmed: A good example is Deep Blue®, where the human behavior is playing chess, and intelligence is designed by humans, rather than acquired through experience.

Narrow machine learned: A good example is the wide spectrum of computer algorithms that have no capabilities prior to being exposed to data, but develop capabilities afterward.

Machines learn from examples. Assume we have 2 populations of patients with different diseases. While it would be onerous for humans to look for differences between these populations, ML finds these patterns rapidly. However, ML depends on human creativity to be successful. High-value consultants support essential activities required before, during, and after ML. An effective strategy does not amount to using the latest ML algorithm. No single approach works well all the time. ML is one tool among many used during strategic solution design with an experienced business partner who can match marketing goals and provide AI solutions.



The Differentiator is Human Talent

Knowledgeable, experienced human talent is needed to produce the best solutions. While a subset of ML algorithms holds promise and more powerful learning agents may eventually need less human support, human input is still required. Knowing what to predict and how to transform data to bring out latent information prior to ML requires human talent.

Failing to partner with an effective AI company can leave you at a strategic and tactical disadvantage. No single ML event is usually sufficient to solve a problem. What is typically required is a complex layering up of ML solutions that are formulated in different ways and selected to work in concert. Human experts are critical when developing these complex ensemble solutions.

Finally, hybrid approaches not obvious to less experienced AI providers can make or break a project. For example, combining AI that finds difficult-to-diagnose patients with network influence-mapping AI has synergy. Simultaneously, influencing diagnosis and treatment is preferable to just influencing diagnosis and leaving brand to chance.

