



## Trillion-Dollar Market: How Can AI Companies Deliver Value?

In this era of digitalization and rapidly changing technologies, artificial intelligence (AI) is entering a dynamic phase of growth as adoption in enterprise sectors continues unabated. However, questions have emerged about whether AI technologies can continue to drive the revolution by delivering the value promised. Especially, AI algorithms/software companies (AI companies) face more and more challenges as the market moves from hype to reality. What can they do to ensure smooth sailing into the trillion-dollar AI market?

### AI is a trillion-dollar market

Despite AI's nascent stage of development, spending on AI-based solutions is expected to see a compound annual growth rate of 65%, exceeding \$1 trillion by 2027. The AI boom is supported by technology improvements, governmental policies and active investments around the globe. Sustainable AI development is driven by three key factors:

**Magnitude and depth of data** — Data is a new asset for companies to leverage. Sophistication of data generation/collection (from records, vision, audio, etc.) and especially growth in the "internet of things" are expected to render

massive amounts of meaningful data (~40 zettabytes of data in 2020). Deriving value through decision insights and workflow automation has become imperative for most companies. Data have become increasingly accessible to train and validate the AI algorithms, which is highly valuable to draw conclusions and predict future outcomes in AI models.

**Computing power** — Incorporating the most advanced technology and systems (GPU/FPGA/ASIC chip, cloud, distributed and parallel), AI has evolved from the academic to the application stage and broken the limit of traditional computing technologies.

**Real value to enterprises** — AI empowers real disruptive changes in businesses and allows significant value creation in areas such as chatbots for customer relationship management, fraud detection, personalization of services, etc. For example, Netflix's AI-enabled content recommendation process has generated \$1 billion in additional revenue per year.

### Prioritization is required

Each vertical has a different adoption trajectory and dynamics, driven by significances of "use cases"; therefore, prioritization is required. AI is rapidly transforming many industries. Major AI use cases have gradually emerged to address critical pain points in various industries. It is important to connect the dots between use case, analytics and data to sufficiently answer the question of real value. Depending on the quality of the AI analytics and the hurdle to demonstrate evidence and consistency in results, use cases can be viable/monetizable in the near vs. far term.

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# Executive Insights

Hence, not all industry verticals are the same. Verticals can be assessed through intrinsic demand (use case value, AI adoption readiness, etc.) and ease of entry (competition, analytics transparency requirements, etc.) when evaluating AI adoptions.

**Banking, financial services and insurance (BFSI)** — Major AI use cases include automated trading, fraud/risk detection and customer relationship management tools. The technology adoption readiness is high for BFSI, as the sector increasingly relies on data and data analytics, which provide the foundation for the AI revolution. The core competencies of BFSI businesses — reliability, speed, safety, accuracy, etc. — can be further improved through AI technologies. The regulatory barrier is low as the industry is open to modern technological upgrades.

**Healthcare and life science** — Major AI use cases include diagnostics assistance, drug discovery and patient management. The technology adoption readiness is at median level, but AI can significantly improve productivity and ameliorate the scarcity of medical resources. The competition and entry barrier in the industry are moderate, with many promising startups.

**Advertising, media and entertainment** — Major AI use cases include consumer behavior analytics, automated recommendation systems, etc. Technology adoption readiness and demand are high as this industry is highly digitalized with an advanced IT infrastructure. AI algorithms have been applied in targeted marketing to assist with customer segmentation and product promotion. The entry barrier is low, but there are concerns about data breaches in developed regions such as the EU and the U.S.

**Retail (offline)** — Major AI use cases include customer analytics, shopping experience enhancement and supply chain management. However, the sector faces a low technology adoption level because customer and business data cannot be transferred externally. Due to the inherent characteristics of offline retail, the urgency of AI implementation is not as high as in other industries. The entry barrier in retail is low, which is similar to that of the advertising, media and entertainment industries.

**Education** — Major AI use cases include adaptive learning tools and course personalization. Education is a traditional industry where data are less digitalized and structured. Many practitioners are not tech-savvy. It will take time to improve on AI technology adoption. On the other hand, AI will enable online study platforms to provide personalized courses with added value to learners. Even though the current intrinsic demand is low, it is easy to enter the education market because of few competitors and minimal regulatory obstacles.

**Industrial/manufacturing** — Major AI use cases include quality control, yield optimization, predictive and prescriptive maintenance, and supply chain management. The large

amount of internet of things data offers a strong basis for AI development in this industry. The drivers are efficiency optimization, process integration and insights analysis through advanced AI algorithms. The spectrum of potential use cases has yet to be explored thoroughly.

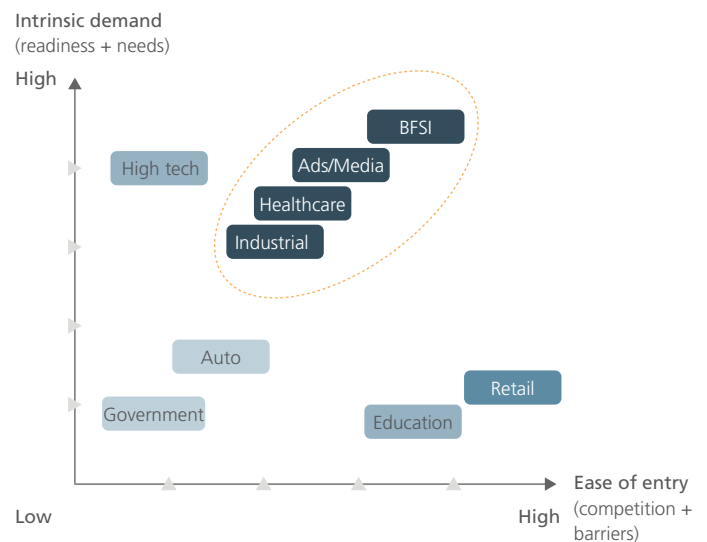
**High tech** — Major AI use cases include all kinds of AI-empowered software systems and devices. The intrinsic demand is high because IT companies are prone to accept new technology and improve their core technological competency. On the other hand, leading high-tech giants have established their own ecosystems with internalized AI know-how and value chain capabilities.

**Automotive and transportation** — Major AI use cases include autonomous driving and route management. New AI applications are led by auto OEMs and IT giants at the pilot stage. Some of the potential applications can drive revolutionary changes and long-term demand. The barrier to entry is high as new players face intensive competition from existing players.

**Smart city** — Major AI use cases include national security and traffic surveillance. This market is mainly driven by initiatives to improve governing efficiency and mitigate security risks. Non-government-related players would find it difficult to enter this market due to the highly regulated access to surveillance data and the favoritism inherited in government funding projects, especially in China.

With analysis of the intrinsic demand and ease of entry of each industry, L.E.K. Consulting identified four promising verticals for AI companies to focus on in the near term: BFSI, ads/media, healthcare and industrial internet of things (see Figure 1).

Figure 1  
Verticals priorities



Source: L.E.K. research and analysis

## **AI companies should focus on the pain points of implementation in industry verticals**

AI algorithms and software companies can be divided into broad-based framework suppliers and vertical application-focused suppliers.

Technology giants like Google, Amazon and Baidu have built extensive ecosystems with a wide range of products and services, covering infrastructure, framework and implementations. Some framework-oriented suppliers typically expand their coverage to multiple vertical sectors. Others mainly focus on specific industry verticals or technology, such as Yitu Technology, Face++ (based on image reading) and iFlyTech (based on voice recognition).

To deliver real value to customers in different industry verticals, AI companies first need to understand customers' pain points.

### **1. Limited AI framework capabilities**

Increasing data magnitude requires exceptional computing power and training efficiency. The frameworks existing in the market may not sufficiently handle all kinds of machine learning models.

### **2. Implementation talent shortages**

Machine learning vertical applications require domain knowledge and customized workflows as standardized solutions do not fit all needs of end users. AI implementations often face obstacles due to lack of expert skill set and deep industry experience.

## **AI companies need to have a flexible and scalable AI framework supporting different models/algorithms.**

For example, the processing capability of a distributed machine learning framework could have 10 times higher processing speed than that of a single framework. With the growing number of data and model parameters, processing speed becomes an increasingly important feature of any AI framework. Distributed machine learning is built on data parallelism and model parallelism, which can scale to achieve significant speed.

A modular framework is also very important. Reusable modules can allow quick implementation and reduce delivery time, which is essential when engaging with third-party developers and system integrators to co-build the vertical platforms.

AI companies need to embed industry know-how into a vertically integrated platform as much as possible to capture value.

A vertically integrated platform can be quickly deployed and capture a high share of the value created for the customers along the value chain. Even though the AI framework is typically the differentiation factor for AI companies, customer value creation is mostly realized in actual applications.

## **AI companies need to build up core commercial competencies**

In addition to core AI technical know-how, the success of AI companies also depends on commercial capabilities and effective go-to-market strategies.

First of all, AI companies, especially startups, should prioritize verticals in order to build deep domain knowledge and develop high-profile use cases. AI companies may face competition, especially from traditional market leaders such as GE and Siemens in the industrial internet of things. There are concerns about ramp-up speed of commercial capabilities to catch up with larger and more "commercialized" competitors. It is critical for AI companies to quickly build high-profile use cases to generate attraction in priority verticals. It is also important to build a sustainable go-to-market model to be able to quickly expand customer reach and ensure market access.

AI companies need to analyze the value creation and to identify the right target customer group. They should keep flexibility in their pricing model to cater to different needs. For specific industry verticals, AI companies can identify the right combination of a go-to-market model and a set of vertical-specialized partners to ensure market access. For example, AI companies can work with hospital information system integrators to penetrate the healthcare market.

## **AI companies also need to work with potential clients to put AI investment at the top of the leadership agenda.**

AI companies should be able to articulate the value of AI solutions. By emphasizing impact on clients' business operations, AI companies can elevate the priority of AI investments.

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## About the Authors



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