Principal Real Estate

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ARTIFICIAL INTELLIGENCE AND REAL ESTATE SERIES | PART II

Beyond DeepSeek: AI disruption and the implications for real estate

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In the first installment of our Artificial Intelligence & Real Estate Series, published last December, we introduced a framework to analyze the impact of the rising adoption of AI technologies on the commercial real estate environment. We also warned that as the AI revolution remains in its infancy, investors should brace for unanticipated breakthrough advancements that are difficult to predict and precisely time. Indeed, over the past month, a pivotal leap took place, intensifying the competition for AI industry leadership and market dominance.

The shifting economics of AI development and deployment

On the 20th of January, a little-known Chinese AI start-up, DeepSeek, released a free and open-source generative AI chatbot able to rival the US industry giants. The release went unnoticed until a few days later when more details about its large language model (LLM) became widespread.

LLMs are general-purpose models trained to understand human language and perform tasks such as generating text or answering questions. These serve as the basis for various AI applications, including, but not limited to chatbots, search engines, and document summarization. Developing a state-of-the-art LLM system typically requires significant capital expenditures and ongoing operational costs. As a result, this field is dominated by a handful of tech giants—such as Alphabet, Amazon, Meta, and Microsoft—investing billions in data center infrastructure, training proprietary AI models, and reinforcing their industry leadership.

Against this backdrop, the rise of DeepSeek may be viewed as a black swan event, or at the very least a watershed moment in the current AI landscape. Indeed, compared to the previous LLMs,

DeepSeek claimed to build its application at a small fraction of the cost (measured in millions of dollars rather than billions) compared to other leading LLMs, using far less computation power and fewer chips. Although questions still arise on the validity of these claims, the achievement has cast doubts on several economic and technical assumptions taken for granted when developing AI models: massive scale, billions of dollars in capital expenditures, substantial power requirements, and costly NVIDIA graphics processing units (GPUs). As a result, these requirements may no longer be essential, lowering entry barriers for new competitors and signaling a profound shift in the economics driving future AI advancements.

DeepSeek innovation could represent a significant milestone of the current AI paradigm. However, it should not be seen in isolation but as part of a broader and expanding ecosystem of businesses competing to push the technology frontier further and gain market shares. Indeed, in the weeks following DeepSeek's announcement, several companies, including OpenAI, ByteDance, Alibaba, Mistral, and Moonshot, released new versions of their own AI models with either more complex reasoning capabilities, enhanced performance, improved functionalities, or lower customer fees. This suggests the AI race is just in its infancy, and its rapid evolution will likely continue at a breakneck speed.

EXHIBIT 1: THE AI LARGE LANGUAGE MODELS (LLM) LANDSCAPE IS RAPIDLY EXPANDING
Selected new model releases over the last five years.
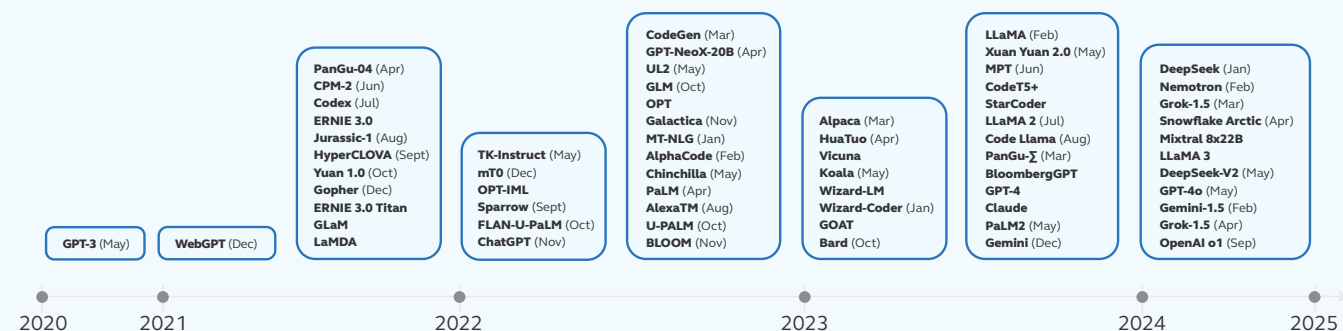
Source: Medium, January 2025

Greater competition will accelerate AI adoption and benefit businesses and households

The AI advancements highlighted in the previous paragraph suggest three likely implications:

- AI can be potentially developed with far less computing power and at a much lower cost. This, in turn, lowers the barriers to entry and potentially enables mid-size companies to compete.
- The ability for other companies to develop models more cheaply and effectively introduces greater competition and innovation into a space currently dominated by a small group of U.S. tech giants.
- A more accessible AI landscape could accelerate the adoption of these technologies, accelerate the transformation of a wider range of industries, and foster productivity gains for corporations and the broader economy. As a result, both businesses and individuals stand to benefit.

To shed light on the sector's trajectory, a parallel can be drawn between AI and other innovative technologies that have historically transformed industry standards. Consider the invention of the printing press. Before its development, books were prohibitively expensive, as producing a single copy required years of labor by multiple individuals. Their availability was minimal, and only a select few could afford them. This changed completely

when Johannes Gutenberg, a goldsmith from Strasbourg, Germany, introduced the movable type, revolutionizing the printing process. His breakthrough significantly increased the demand for books, improved literacy rates and enabled the creation of new forms of media, such as leaflets, journals, and gazettes. Since then, the Church's long-standing monopoly on knowledge steadily declined as information could spread more freely and widely!

Chatbot applications like ChatGPT and DeepSeek have already reached a high penetration rate across different industries. These solutions can be easily integrated into existing workflows, tools, and business processes cost-effectively. However, as the AI revolution progresses, each incremental improvement is likely to trigger spillover effects and accelerate the adoption of new applications across industries. As the economy becomes increasingly dependent on digital technologies, the volume of data generated, stored and exchanged will continue to grow.

For instance, in Germany, Heinrich Feess GmbH, a construction company, started to use visual recognition AI models to increase their recycling rate and reduce costs. As trucks enter the construction site, a camera scans the content and sends the data to an AI system trained to immediately classify pieces by size, material, impurities and other criteria. The system continues to learn over time, sending increasingly precise instructions on how to sort the material. Previously, the process was carried out by hand and goodwill. Similarly, in Italy, a consumer goods manufacturer has trained an AI algorithm to recognize good pieces from defective ones at a speed impossible for humans. The system is connected to the production line and automatically prevents lower-quality products from reaching the market. According to Marco Taisch, professor of Digital Manufacturing at the Polytechnic University of Milan, the national productivity could increase significantly if similar systems become fully operational across the country. The two cases mentioned above refer to the construction and manufacturing industries. However, several other fields can benefit from a wider spread of cost-effective AI technologies, including drug discovery, medical equipment, quality control, design, robotics, logistics, and many others.

EXHIBIT 2: MOST INDUSTRIES HAVE ADOPTED OR ARE EXPLORING AI-ENABLED TECHNOLOGIES

Is your company using generative AI (GenAI) tools such as ChatGPT?
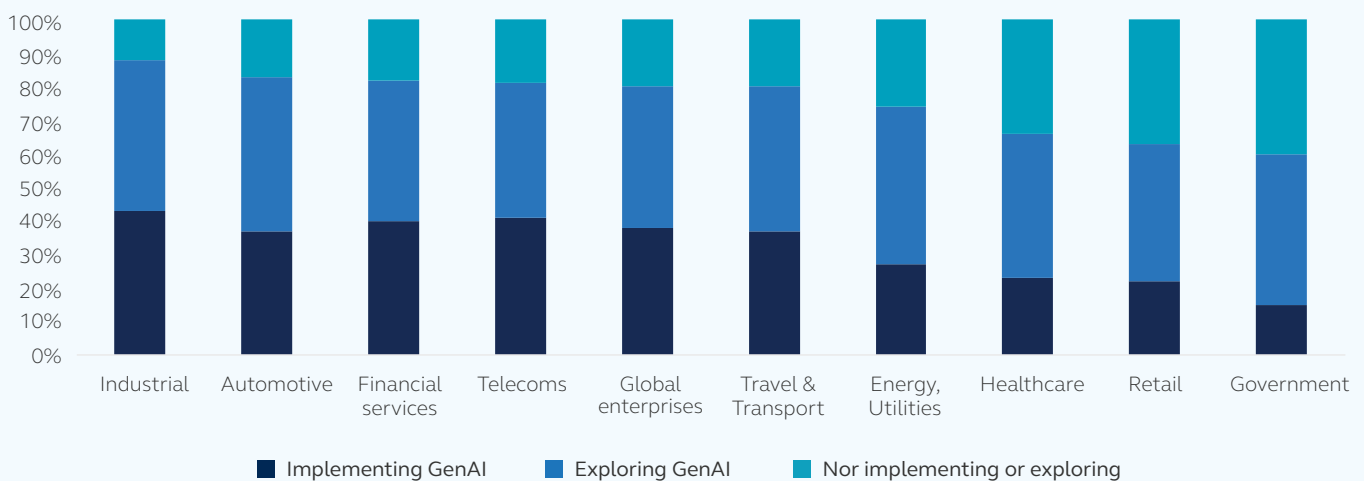
Source: IBM Global AI Adoption, November 2023.

[1.]Based on a sample of 2,342 IT professionals at enterprises with more than 1,000 employees

The impact on the real estate sector varies by property type

In December 2024, we introduced a framework to analyze the impact of AI technologies on the commercial real estate environment. We believe the recent case of DeepSeek, alongside the broader industry trends of lower barriers to entry and wider competition, does not change but instead accelerates the path toward our earlier, sector-specific conclusions. We expect AI to continue to have a significant and positive impact on data centers, life sciences, healthcare, and logistics; a marginally positive effect on hotels, student housing, and residential; and a neutral to a negative impact on offices, high-street retail, and shopping centers.

- **Data centers:** While the sector could experience some near-term demand moderation following the DeepSeek announcement, long-term prospects remain strong. Increased technological advancements will likely generate more data and, in turn, demand for space. In the U.S., major tech companies currently face years-long backlogs in model testing due to near-zero vacancy rates. Demand has outpaced supply, with rental growth approaching 30% annually in some markets. If DeepSeek's model delivers on its promises, it could alleviate some immediate pressure by improving access to much-needed space while also fueling AI demand in the medium to long term—a net positive for the sector.

- **Industrial:** The sector could benefit from further supply chain modernization. While automation has already reshaped logistics, advancements in AI-driven operations could enhance efficiency and create new investment opportunities in next-generation distribution centers.

- **Residential:** Stronger productivity growth, typically associated with wage growth, could improve housing affordability and living standards. If AI-driven efficiencies translate into higher earnings, this could support demand for residential real estate.

- **Retail:** Stronger economic growth, driven by AI-enabled efficiencies, can strengthen business and household balance sheets. Additionally, AI applications in inventory management and operational optimization may help retailers reduce costs and improve profitability. However, these benefits could be offset by increased e-commerce penetration enabled by AI tools.

- **Office:** This sector may face the most significant challenges if AI accelerates the elimination of redundant positions. While AI has the potential to drive growth in emerging industries and improve corporate balance sheets, we feel that structural dislocations may act as a governor on a more robust demand recovery in an already challenged sector.

Conclusion

The rapid advancements in AI, exemplified by DeepSeek's emergence, are likely to reshape the industry's competitive landscape, lower barriers to entry, and eventually accelerate AI adoption across sectors. As history has shown with other transformative technologies, greater accessibility fosters widespread innovation and economic gains. AI is already delivering tangible productivity improvements, and its impact will undoubtedly expand. While the implications for commercial real estate vary by asset class, we expect the continued advancements of this technology to produce a positive effect overall. Ultimately, we recommend incorporating AI considerations into the investment decision process alongside other critical factors we have addressed in our Inside Real Estate - 2025 Annual Real Estate Outlook, such as macroeconomics, geopolitics, ESG, and demographics. We expect the approaching recovery in real estate to be primarily driven by income and rental growth. Thus, selecting property types with strong underlying fundamentals and favorable secular tailwinds is paramount.

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