# The Rise of DeepSeek: A Turning Point for AI Race?

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DeepSeek has developed efficient large language models (LLMs) rivaling OpenAI and Google's, but at a lower cost, challenging the "bigger is better" model paradigm. Despite initial market concerns, CSP capex remains strong, and the long-term AI computing demand is expected to grow as cheaper models drive adoption and edge computing. The rise of efficient AI may reshape the competitive landscape, creating opportunities for Taiwanese semiconductor companies.

*By Cathay SITE*

DeepSeek, a Chinese AI startup, has made waves in the AI world with its large language models (LLMs) that rival those of OpenAI and Google, but at a fraction of the cost. This has significant implications for the semiconductor industry, particularly for companies like NVIDIA, which have heavily profited from the demand for powerful GPUs needed to train these models.

## Bigger models are not always better
DeepSeek has demonstrated that cutting-edge AI can be achieved without the massive computational resources traditionally associated with LLMs, and challenges the prevailing notion that bigger models are always better.

DeepSeek's efficient AI models could potentially reduce the demand for high-end GPUs, which are currently the workhorses of AI development. If more AI companies adopt DeepSeek's approach, they may be able to achieve comparable results with fewer GPUs, impacting NVIDIA's revenue. AI stock selloff sparked by DeepSeek rippled through Taiwanese Firms in NVIDIA's supply chain but the market panic may be overblown.

By making its models open-source, DeepSeek is democratizing access to advanced AI technology. This empowers smaller organizations, researchers, and developers to build and deploy sophisticated AI applications without requiring massive capital investment. In the meantime, the disruption of NVIDIA's dominance in the GPU market for AI may create opportunities for other chip manufacturers to enter the market with more cost-effective solutions. This development could reshape competition between established tech giants and startups.

## CSP's capex is no change in plan
The emergence of DeepSeek cast doubt on the need for huge AI capex, but we don't expect that it will slow large CSPs' capex spending in the near-term as they need to stay competitive in the evolving AI landscape. Since AI investments so far have primarily focused on infrastructure, CSPs will prioritize model development and construction, with the importance of model development outweighing the need for raw computing power (chips) itself. As a result, the demand for AI chips is unlikely to significantly decrease, and CSPs' capital expenditures for AI development remain unchanged. Recent AI capex announcements are seen as a nod to the need for continuous investment and innovations. In terms of chip selection, CSPs may become more flexible, optimizing data center cost structures and accelerating the development of ASICs (Application-Specific Integrated Circuits). In a nutshell, there is no compelling evidence

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suggesting that DeepSeeks's success would cause excess computing power and upend industry growth momentum.

Tech giants won't necessarily always be at the forefront. Significantly lower costs by efficient AI models will not reverse the AI trend but instead may lower entry barriers for companies to develop innovative technologies. Jevons Paradox suggests demand could increase as prices fall. In other words, from training to more inferencing, in which phase puts more emphasis on post-training that requires significantly lower computational resources, we remain positive on long-term AI computing demand growth as less costly AI models will eventually drive greater adoption and proliferations of AI.

### Implications on Taiwanese AI supply chain
Taiwan's strong position in the semiconductor industry could benefit from DeepSeek's rise. DeepSeek still relies on NVIDIA GPUs for its training, suggesting that GPUs will continue to play a crucial role in AI development for the foreseeable future. In the meantime, companies like TSMC, which manufactures NVIDIA's GPUs, could see increased demand for specialized chips that are optimized for running efficient AI models.

Some people argue that DeepSeek is a threat to data centers. In our opinion, the rapid and widespread proliferation of AI applications, cloud computing, and data-driven services, will continue to drive the need for data center infrastructure. In this context, AI servers and advanced cooling solutions remain indispensable to support high-density computing environments.

In the long run, DeepSeek's advancements in improving inference model efficiency and reducing parameter scales may align with the growing demand for edge AI. The reduction in AI computing and development costs could encourage more startups to invest in AI applications, accelerating AI adoption and integration into edge devices, thus driving the rapid growth of the AI application market. However, we are still at an early stage of AI applications, and it may take time for the scenario of ubiquitous AI adoption to materialize.

In conclusion, DeepSeek's emergence is a significant development in the AI world. Its efficient and cost-effective approach to AI development has the potential to disrupt the industry and reshape the AI landscape. While the full extent of its impact is yet to be seen, it is clear that DeepSeek has introduced a new paradigm that could have far-reaching consequences for the future of AI.