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**Developing Regulatory Policies Conducive to
Information Networks Handling AI**

by

Joseph V. Kennedy*

I. Introduction and Summary

Over the past six years artificial intelligence (AI) has been the subject of thousands of articles and billions of investment funds. Proponents characterize it as a transformative technology like electricity and computers that will fundamentally change the entire economy and, through it, the general society. AI is forecast to have significant effects on education, health care, transportation, energy, and many other industries. Most of the current effort has gone into a frantic race to build the AI models that will transform trillions of data points into new frontiers of knowledge.

Without modern, secure information networks with much more bandwidth than today's, capable of much faster transmission and compute speeds, and able to monitor their current state and make autonomous adjustments to maximize their own performance, AI will be practically worthless. While almost everyone has focused on improving the AI models, not enough thought has been devoted to facilitating the transmission capacity needed to connect, compute, and control the massive amounts of data involved. One forecast predicts that AI workloads will represent more than 50 percent of enterprise data traffic by 2026, up from 15 percent in 2021.¹ Global bandwidth is estimated to rise from about 100 exabytes in 2026 to 8,100 exabytes in 2036. Finally, the number of devices connected to the Internet is expected to increase from 24-26 billion in 2026 to 40-50 billion

¹ "How AI is Transforming Enterprise IT Networks," April 14, 2025, Lightpath, <https://lightpathfiber.com/articles/how-ai-transforming-enterprise-it-networks>.

in 2036.² While 99 percent of organizations have cloud strategies and are adopting AI, only 49 percent say their networks can support the necessary bandwidth and low latency.³

The problem involves more than the size of the networks. Maximizing the performance of AI information networks will require changes in their structure, adding to the cost and complexity of building new capacity. Over the next decade, the United States will have to invest billions of dollars building a system of networks capable of transmitting, processing, and acting on massive amounts of data.

We need regulation that does not impede the build-out of the infrastructure necessary to support AI scalability. Agencies, including the FCC, must create an environment conducive to spurring the construction and operation of enhanced information networks. Regulation of communications markets should promote competition that encourages investment and innovation. Congress, the FCC, and other agencies need to continue their efforts to implement permitting reform so as to eliminate unnecessary delays and inflate costs. Policymakers also need to take a more active role in negotiations to set international standards.

II. The Uniqueness of Information Networks

The job is made harder by the fact that information networks differ from most other industries in three major ways. The first is that information networks are usually most valuable when they cross international boundaries. But this leads to several issues. The first is that networks operate in a global market in which the decisions of some nations have a significant impact on others. As a result, nations must negotiate common rules and standards. Key international issues include the fact that other nations can collect and distribute data in the United States without our permission, especially with WiFi and satellite technology. Second, the physical boundaries of network ownership become complicated when dealing with space, the oceans, and other global common property. Third, one country's use of spectrum and satellites can easily affect that of other countries. Finally, every country has ongoing debates about content moderation and data storage, both of which have international aspects.

A second major characteristic of information networks is that a number of communication providers, including broadcasting stations, over-the-air streaming, fiber, and fixed wireless are transforming themselves, converging, or merging. At this time no one knows what the best business strategies will be. We don't even know the rules yet.

Finally, a third trend is that most communication industries are undergoing rapid technological and structural innovation. Companies are investing billions to use AI to improve their information networks. At the same time, for example, other parts of the sector are working to implement 5G and soon-to-be 6G technology, and broadcasters are trying to build NextGen TV. This complicates planning and puts a premium on developing proper regulatory policies.

² Gamal Refai-Ahmed, et al., "When Intelligence Overloads Infrastructure: A Forecast Model for AI-Driven Bottlenecks," ArXiv, November 10, 2025, <https://arxiv.org/abs/2511.07265>.

³ Bob Violino, "AI Likely to Put a Major Strain on Global Networks—Are Enterprises Ready?" February 18, 2026, NetworkWorld, <https://www.networkworld.com/article/4133289/ai-likely-to-put-a-major-strain-on-global-networks-are-enterprises-ready.html>.

III. How AI Changes Information Networks

At some point, it is not enough to balance network capacity by adding more hardware. Instead, software becomes more important in the form of smart networks that can dynamically add bandwidth, avoid congestion, and improve power use. AI systems are bandwidth-intensive and require fast connectivity for real-time processing. Workloads involve transferring massive data sets across the networks, requiring infrastructure that can handle high volumes of data with enough speed to support efficient data handling, scalability, and real-time processing.⁴

In order to maximize the use of AI, the structure of the information networks needs to be transformed. Transmission and computation both take place differently in the case of AI: “AI workloads generate fundamentally different network demands than traditional applications, creating bottlenecks that have nothing to do with your internet speed.”⁵ Luckily, AI itself will help us build much better systems. It is already making significant improvements to the information networks. As a result, AI will improve the very infrastructure needed for its own performance, provided the market and regulators welcome the changes.

The size of the networks is not the only problem, although billions of dollars are needed to expand their physical structure. The movement and processing of data within AI networks differs from traditional broadband networks in several ways.

The first is the massive use of electricity and water needed to operate data centers. This demand is driving much of the forecasted increase in power and cooling capacity and has required close integration with the data networks of both industries. Although other industries are not as integral to the operation of AI networks, it is likely that their information networks will also have to be tied into the AI grid. In order to maximize performance, information networks will need access to large amounts of data. Depending on the use, this could include patient records, vehicle locations, testing results, and machine diagnostics. Implementing the results of AI computation will also require close integration with information networks in the transportation, health care, education, and manufacturing industries among others. One article states: “AI infrastructure—once seen as neutral commercial real estate—is now strategic national infrastructure, comparable in importance to electricity grids, ports, or oil pipelines.”⁶

In other cases the impact of AI will be on the structure of the information network. There is likely to be an increase in "east-west" or lateral data transfer as opposed to the traditional "north-south" transfer. The result will be that a much higher proportion of data flows from CPU unit to CPU unit, rather than to or from an end user. As more computing power gets moved to the edge, the importance of transmission speeds will increase relative to computing speeds.⁷ The “networking

⁴ Heather Roberts, “Network Optimization for AI: Best Practices and Strategies,” Lumen, February 18, 2025, <https://www.lumen.com/blog/en-us/network-optimization-ai-best-practices-strategies>.

⁵ James A. Wondrasek, “How Bandwidth and Latency Constraints Are Killing AI Projects at Scale,” Softwareseni, December 29, 2025, <https://www.softwareseni.com/how-bandwidth-and-latency-constraints-are-killing-ai-projects-at-scale/>.

⁶ Oliver Jabbour, “When Data Centres Become Targets: It’s Time to Treat AI Infrastructure as Critical Infrastructure,” World Economic Forum, April 2, 2026, <https://www.weforum.org/stories/2026/04/ai-infrastructure-critical-infrastructure/>.

⁷ “AI Infrastructure Predictions Round-Up – What 2026 Will Demand,” RCR Wireless News, December 19, 2025, <https://www.rcrwireless.com/20251219/ai-infrastructure/ai-infrastructure-predictions>.

wall” refers to a situation in which the network cannot transfer enough data to the CPU units to keep them fully occupied. East-west traffic requires ultra-low latency, massive bandwidth, lossless transmission, and dynamic adaptability.⁸

The second change is the rising importance of upload speeds. Traditionally downloading speeds have been more important than uploading speed. For example, when evaluating bids for the Broadband Equity Access and Deployment Program (BEAD), the Federal Communications Commission defined broadband as being 100 Mbps download and 20 Mbps upload.⁹ This made sense because the user seldom minded waiting a second more for his input to show up on the screen. On the contrary, download speeds determine whether your call drops, your screen freezes, or the football game is filled with static. AI is fundamentally different. With the advancement of the Internet of Things and Direct to Device technologies AI systems will continuously monitor and control tens of billions of devices. A typical user might have one sensor on his heart to spot early signs of stress, another on his door announcing visitors, one on his dog’s feed dish, and several on his car motor creating a virtual copy that can predict engine failure.

Finally, latency will need to fall dramatically. An AI system in New York cannot interact with a moving vehicle in California unless latency is virtually zero. One solution is to put more computing power on either the device or the edge of the networks: “as AI shifts to real-time inference in finance, robotics, autonomous systems, and instant-response customer experiences, the pressure to place compute close to the user is only going to grow.”¹⁰ Some reports predict that even if latency fell to zero, the time needed to travel back and forth, even at the speed of light, will be too long. Data centers may need to locate closer to the main population centers.¹¹ The 2024 Ciena Global Data Center Networking Report found that 87 percent of operations will need 8 Gb/s or faster wavelengths connecting data centers by 2023. Roughly 42 percent of new facility construction will be specifically dedicated to AI workloads.¹²

The growth in AI, specifically memory chips, has affected other electronic markets, resulting in much higher prices for lower-value chips. Over the last few years the demand for high-end CPUs has skyrocketed due to AI companies that can afford to pay high prices due to large outside investment. This has created a supply shortage and higher prices for normal uses. A recent article traced the problem to several factors:¹³

- AI demand has permanently raised baseline memory consumption, resulting in upward pressure on prices.

⁸ “How AI is Transforming Data Center Networking,” Volico, June 3, 2025, <https://www.volico.com/how-ai-is-transforming-data-center-networking/>.

⁹ “FCC Increases Broadband Speed Benchmark,” Federal Communications Commission, March 14, 2024, <https://docs.fcc.gov/public/attachments/DOC-401205A1.pdf>.

¹⁰ Jack Backes, “AI and Latency: Why Milliseconds Decide Winners and Losers in the Data Center Race,” Data Center Knowledge, December 19, 2025, <https://www.datacenterknowledge.com/infrastructure/ai-and-latency-why-milliseconds-decide-winners-and-losers-in-the-data-center-race>.

¹¹ Sarah Weston, “Latency Kills AI: Why Interconnection is the Missing Link for Enterprise AI Success,” Intelligent CIO, June 11, 2025, <https://www.intelligentcio.com/eu/2025/06/11/latency-kills-ai-why-interconnection-is-the-missing-link-for-enterprise-ai-success/>.

¹² “How AI is Transforming Data Center Networking,” Volico, June 3, 2025, <https://www.volico.com/how-ai-is-transforming-data-center-networking/>.

¹³ “Tracking Memory Price Increases Across the Last Several Quarters,” Sourceability, March 31, 2026, <https://sourceability.com/post/tracking-memory-price-increases-across-the-last-several-quarters>.

- High bandwidth memory is crowding out dynamic random-access memory.
- Rather than build more capacity, suppliers are raising prices.
- It takes a long time to build new manufacturing facilities.
- Manufacturers are coordinating to preserve high profits.
- Geopolitical and trade events have created uncertainty and challenged supply chains.

One forecast predicts that, under a moderate scenario, the average price of a smartphone could rise by 3-5 percent in 2026, resulting in a fall in sales of 2.9-5.2 percent. PC prices could increase by 4-6 percent, reducing volume by 4.9-8.9 percent.¹⁴ Several policies might help. One solution is to reduce trade barriers. Governments could also look at policies to encourage competition between chip manufacturers to increase supply and reduce prices. Given the link between network coverage and economic growth, it might even make sense for government to subsidize the GPU market, perhaps through a tax credit for network investments or research on better processing units.

Finally, the networks themselves must autonomously react to changes in their environment:

Traditional, static network architectures simply can't keep pace with AI-accelerated threats that mutate, move laterally, and probe infrastructure faster than human operators can respond. The advantage shifts to networks that can sense and interpret abnormal patterns in real time, automatically adjust routing, prioritize clean paths, and quarantine hostile traffic before it impacts services.¹⁵

IV. The Importance of AI

Congress, the FCC, and other agencies in the executive branch have spent a great deal of time and money connecting people to the Internet, most recently through the \$42.45 billion BEAD program. Broadband connections are linked to economic growth in an area. However, the consequences of not having access to the AI grid are likely to be even larger than not having broadband. Exclusion from the AI network would deny people of the tremendous benefits that it promises, many of which will become integral to normal life. Nor is exclusion likely to affect only those in rural or low-income areas. Even prosperous neighborhoods will experience a lack of capacity if either transmission or computing latency is too slow.

Because the cost of a major equipment failure or physical attack may exceed that of a large and prolonged electricity failure, significant redundancy will be needed. Due to its capital intensity, physical damage to the networks is not only disruptive in the short-term, it is also difficult to restore. When inference is integrated into financial payments, logistics, health care operations, and government services, network outages begin to resemble power outages in their cross-sector spillovers. With AI, the resilience of the infrastructure becomes inseparable from national security and economic continuity.¹⁶

¹⁴ “Global Memory Shortage Crisis: Market Analysis and the Potential Impact on the Smartphone and PC Markets in 2026,” IDC, December 18, 2025, <https://www.idc.com/resource-center/blog/global-memory-shortage-crisis-market-analysis-and-the-potential-impact-on-the-smartphone-and-pc-markets-in-2026/>.

¹⁵ “AI Infrastructure Predictions Round-Up – What 2026 Will Demand,” RCR Wireless News, December 19, 2025, <https://www.rcrwireless.com/20251219/ai-infrastructure/ai-infrastructure-predictions>.

¹⁶ Oliver Jabbour, “When Data Centres Become Targets: It’s Time to Treat AI Infrastructure as Critical Infrastructure,” World Economic Forum, April 2, 2026, <https://www.weforum.org/stories/2026/04/ai-infrastructure-critical-infrastructure/>.

V. Regulatory Policy

The importance of the information networks has strong strategic as well as economic consequences. For this reason, proper regulatory policies will continue to be important.

First and most important it will be important to have in place policies conducive to the construction and operation by the private sector of robust, secure information networks. This will require ongoing investment of tens of billions in private funding, accompanied perhaps by significant federal and state subsidies that are subject to strict guidelines consistent with ensuring efficiency and preventing waste and fraud. Recent experiences to expand broadband coverage show it is not always easy for the government to facilitate investments that speed construction, lower prices, and foster innovation.

Market competition must be allowed to spur new investment, innovative products, continued improvement in consumer welfare, and low prices. With deregulated, competitive markets, antitrust concerns are likely to be one of the few remaining issues justifying federal involvement. The Federal Trade Commission and the Department of Justice are both well equipped to handle these issues.¹⁷ Regulation of the communications providers by the FCC should concentrate on policies that will facilitate the modernization of information networks. This can best be done by creating an environment that encourages private investment, ensures network security, manages spectrum and satellite issues, and promotes international standards.

Another challenge is to speed the permitting processes that network providers face when they apply for access to government rights of ways or other property or permission to work on public land. Some progress has been made at the federal level. However, a recent FCC Notice of Proposed Rulemaking finds that there is ample evidence of local and state governments still imposing significant obligations on providers and the FCC is commencing a rulemaking proposing to preempt unreasonable obstacles.¹⁸ Legislation has also been introduced in the House of Representatives (H.R. 2289).

Common policies to accomplish permitting reform include shot clocks, presumptions of approval when time limits have passed, and a requirement that all fees be limited to the actual direct costs of considering a deployment request. Fees must also be nondiscriminatory and publicly announced and the cost of any in-kind compensation such as infrastructure improvements beyond restoring areas directly affected by the deployment, must be counted against the maximum allowed fees.

Finally, the federal government needs to devote significant resources to the negotiation of international policies and standards that our allies will support. An important step would be to prepare for the ITU World Radiocommunication Conference which will be held October 18 to

¹⁷ Randolph J. May, "Congress Should Adopt a 'Skinny' Communications Reform Bill," Free State Foundation, *Perspectives of FSF Scholars*, Vol. 21, No. 20, April 30, 2026, <https://freestatefoundation.org/wp-content/uploads/2026/04/Congress-Should-Adopt-a-Skinny-Communications-Reform-Bill-043026.pdf>.

¹⁸ Federal Communications Commission, Notice of Proposed Rulemaking, "Build America: Eliminating Barriers to Wireline Deployments," WC Docket No. 25-253, June 4, 2026, <https://www.docs.fcc.gov/public/attachments/DOC-422166A1>; FCC, Proposed Rule "Build America: Eliminating Barriers to Wireless Deployments," *Federal Register*, December 1, 2025, <https://www.federalregister.gov/documents/2025/12/01/2025-21620/build-america-eliminating-barriers-to-wireless-deployments>.

November 12, 2027, in Shanghai, China. The Administration still needs to appoint a strong WRC leader and assemble a capable delegation. It also needs to spend more resources formulating international policies that support free trade, adopt common standards consistent with Western technology, and encourage continued innovation.

VI. Conclusion

AI promises great things across many industries. However, the implications are still hotly debated. One thing we do know is that there is a large disconnect between the likely expansion of AI and the information networks needed to connect, compute, and control the large amounts of data integral to it. This is already affecting performance. Energy, cooling, and inefficient data movement are becoming operational constraints. As much as 65 percent of the infrastructure sits idle while still consuming power.¹⁹ “Grid expansion will continue to lag demand. The result is a growing class of AI features that are delayed, downsized, or even quietly removed from product roadmaps before users ever encounter them.”²⁰

In summary, governments need to devote significant attention to adopting policies that are conducive to building and operating the information networks of the future.

*Joseph V. Kennedy is Director of Policy Studies and Senior Fellow of the Free State Foundation, an independent, nonpartisan free market-oriented think tank located in Potomac, Maryland. The views expressed in this *Perspectives* do not necessarily reflect the view of others on the staff of the Free State Foundation or those affiliated with it.

¹⁹ “2026 State of AI Infrastructure Report,” DDN, <https://www.ddn.com/2026-state-of-ai-infrastructure-report/>.

²⁰ Ali Azhar, “2026 Top AI Infrastructure Predictions—The Power Wall, the Compute Divide, and the Rise of Sovereign Stacks,” HPCwire, December 22, 2025, <https://www.hpcwire.com/bigdatawire/2025/12/22/2026-top-ai-infrastructure-predictions-the-power-wall-the-compute-divide-and-the-rise-of-sovereign-stacks/>.