

Artificial Intelligence, Critical Minerals, and the Financial Abandonment of American Manufacturing

written by Jack Lifton | October 20, 2026

Why can American financial markets mobilize hundreds of billions of dollars annually for artificial intelligence, a technology whose ultimate profitability remains uncertain, while struggling to finance the reconstruction of industrial capabilities whose necessity is already clear?

I believe that this question goes to the heart of America's critical minerals crisis. It also exposes a fundamental weakness in the financial system that has come to dominate American industrial policy, corporate management, and capital allocation.

Wall Street has discovered artificial intelligence, and the capital being committed to its development is extraordinary. Reuters [reported on October 7, 2026](#), that the world's largest technology companies' combined capital spending plans had risen to more than \$730 billion for the year. In June, [Morgan Stanley projected](#) that global AI-related debt issuance could approach \$570 billion in 2026. These figures measure different aspects of financing and spending, so you can't add them together, but they illustrate the extraordinary scale of the financial commitment to developing artificial intelligence.

Meanwhile, the International Energy Agency reported in its [2026 Global Critical Minerals Outlook](#) that global investment in critical minerals actually declined by 9% in 2025, ending several years of growth. The same report noted that public

financing commitments in advanced economies had reached approximately \$65 billion, more than four times the 2023 level. Even so, this figure reflects commitments rather than actual disbursements, and it covers a broad range of critical mineral projects rather than just the processing and manufacturing capabilities I regard as the most important industrial bottlenecks.

The contrast is striking. Financial markets are prepared to finance a technological revolution whose ultimate commercial structure remains uncertain, but they remain reluctant to finance the industrial infrastructure needed to sustain the physical economy on which that revolution depends.

I am not suggesting that artificial intelligence is unimportant. I believe that it will become an increasingly valuable tool in scientific research, engineering, manufacturing, and business management. My concern is that we are once again confusing the creation of financial wealth with the creation of productive industrial capability.

I have spent more than sixty years working in, managing, researching, and observing industrial manufacturing and the technologies that support it. During that time, I have watched the United States transform from the world's preeminent industrial manufacturing economy into one increasingly dependent on other nations' industrial output. This transformation was not inevitable. It was the foreseeable consequence of decisions made by corporate management, investors, financial institutions, and governments. Those decisions were generally justified in the name of economic efficiency, but they too often measured efficiency by returns on financial capital rather than a nation's long-term productive capacity.

What we now call the critical minerals crisis is, in my opinion,

a symptom of a much larger problem: the financial abandonment of American industrial manufacturing.

The Extraordinary Difference Between Industrial Importance and Financial Attractiveness

The International Energy Agency has offered a particularly revealing comparison. In its [2026 study](#) of rare earth supply chains, the agency estimated that developing diversified magnet rare earth supply chains outside the dominant supplier, China, would require about \$60 billion in investment over the next decade. Nearly half of this investment would go to refining, while about one-third would go to magnet manufacturing.

Consider what this means. The estimated capital required over ten years to substantially diversify the world's rare-earth magnet supply chain is less than one-tenth of the annual capital spending now being planned by the largest technology companies.

The comparison isn't exact because the two figures reflect different industrial activities, geographies, and time periods. But the difference in scale is so enormous that it raises a question about our financial system's priorities.

Why is it relatively easy to mobilize hundreds of billions of dollars to build data centers, yet so difficult to finance the chemical separation plants, metal production facilities, alloy plants, and magnet factories that underpin the manufacturing of essential electrical and electronic equipment?

The answer is not that the industrial importance of these facilities is uncertain. The IEA [estimates](#) that fully implementing China's expanded rare earth export restrictions

could jeopardize as much as \$6.5 trillion in annual downstream production outside China. This estimates economic activity exposed to disruption, not a prediction that \$6.5 trillion will actually be lost. Nevertheless, it illustrates the extraordinary economic leverage a relatively small number of critical materials and processing capabilities can exert.

We are discussing a potential vulnerability measured in trillions of dollars, whose mitigation may require investments measured in tens of billions.

This is an astonishing imbalance between an industrial capability's economic importance and financial markets' willingness to provide the capital needed to establish it.

A rare earth separation plant may be essential to producing thousands of manufactured products, yet it may never offer investors the financial returns expected from a successful artificial intelligence software company. Its value to the national economy may be enormous, while its profitability as an individual enterprise may be relatively modest.

This distinction between industrial importance and financial attractiveness is the central problem that American industrial policy has failed to resolve.

Artificial Intelligence Cannot Replace Industrial Production

Artificial intelligence is fundamentally an information-processing technology. Its economic value will ultimately depend on its ability to improve productivity, reduce costs, accelerate innovation, or create products and services customers will pay for. These are legitimate objectives, and some applications will undoubtedly become enormously valuable.

But artificial intelligence does not eliminate the physical requirements of industrial civilization.

A computer cannot manufacture an electric motor without copper, steel, insulation, and, in many applications, rare earth permanent magnets. It cannot produce a semiconductor without highly purified and precisely engineered materials. It cannot construct an electrical transmission system without conductors, transformers, and the industrial facilities required to manufacture them. It cannot build a factory without machinery, nor can it replace the chemical engineering, metallurgy, process development, and manufacturing experience required to produce materials consistently at commercial scale.

Artificial intelligence may help engineers design improved chemical separation systems. It may optimize an existing metallurgical plant's operation. It may help identify process inefficiencies and accelerate materials research. But engineers must still demonstrate the resulting improvements in physical equipment, using actual feedstocks, under conditions that can be reproduced economically in commercial production.

The expansion of artificial intelligence may increase demand for many critical materials whose supply chains are already fragile. Data centers require enormous investments in electrical generation and distribution, cooling equipment, transformers, conductors, and electronic components. Advanced semiconductors require highly specialized materials and extraordinarily sophisticated manufacturing equipment. The physical infrastructure supporting artificial intelligence is not virtual. It is an industrial system.

It is therefore ironic that the United States is prepared to invest so heavily in artificial intelligence while remaining dependent on foreign industrial systems for much of the

equipment and material inputs required to support it.

We should ask ourselves whether the United States is becoming a nation that designs the future but must purchase the materials and machinery needed to build it from someone else.

The Financialization of American Industry

The decline of American manufacturing did not begin with China's emergence as an industrial superpower. It began when American corporate management increasingly treated manufacturing as a cost center rather than the nation's fundamental source of economic strength.

Beginning in the latter part of the twentieth century, financial performance became the dominant measure of corporate success. Companies moved manufacturing overseas when it reduced costs and improved reported margins. Companies abandoned capital-intensive businesses for those promising higher returns on invested capital. Industrial research, process development, and training skilled manufacturing workers increasingly became expenditures to minimize rather than investments in future competitiveness.

The financial markets rewarded these decisions. A corporation that closed an American factory and purchased its output from a lower-cost foreign supplier could report improved profitability. Its shareholders benefited, at least in the short term. But the national economy lost not only the factory but also the accumulated knowledge, supplier relationships, technical workforce, and manufacturing experience that had made the factory possible.

These losses were cumulative. Once a manufacturing industry disappears, its supporting industries begin to disappear with

it. Eventually, even if the final product can be designed domestically, the materials, components, production equipment, and qualified personnel needed to manufacture it may no longer be available.

This is precisely what has happened in important portions of the American critical materials supply chain.

China, meanwhile, followed a different course. For roughly a quarter of a century, and in some industries longer, it has pursued industrial policies designed to establish and maintain domestic capabilities across entire manufacturing supply chains. These policies have not always been economically efficient by Western financial standards. They have involved subsidies, excess capacity, financial losses, and considerable waste. But they have also produced something that the American financial system has consistently undervalued: industrial capability.

China did not establish its dominant position in rare earths simply by mining rare earth ores. It developed the chemical separation, metal production, alloy manufacturing, magnet fabrication, and downstream manufacturing capabilities required to convert those ores into industrial products. The resulting advantage is not merely one of access to natural resources. It is an advantage in the organization, integration, experience, and scale of industrial production.

You can't overcome that advantage simply by discovering more mineral deposits or financing more mines.

**The Critical Minerals Crisis Is Real.
Much of the Investment Promotion Is**

Not.

This brings me to a question investors should ask more often. Is America's critical minerals crisis a genuine threat to the national economy, or is it simply another temporary investment promotion amplified by Wall Street speculators seeking to profit from public anxiety?

My answer is that the industrial problem is entirely real, but much of the financial promotion surrounding it is speculative.

The International Energy Agency's findings support the seriousness of the underlying problem. Its 2026 outlook reported that geographic concentration in critical mineral refining had increased, notwithstanding efforts to diversify production. It also found that investment outside the dominant producing countries remained disproportionately concentrated in mining rather than in refining and downstream manufacturing.

In the rare earth industry, the IEA [projected](#) that existing and announced diversified refining capacity would be only about two-thirds of expected mined supply by 2035, while planned magnet production would be only about one-third. These are projections based on announced projects, not guarantees of future production. But they demonstrate the same structural imbalance that I have been describing for years.

We are investing in the discovery and extraction of critical minerals without making corresponding investments in the industrial processes necessary to transform those minerals into useful materials.

A material can be critical to an industrial process, but a company claiming to possess a critical mineral resource is not automatically a good investment. The two propositions are not interchangeable.

A mineral deposit does not become a commercially useful source of a critical material merely because its owners announce that it contains elements appearing on a government critical minerals list. The deposit must be mined economically. Its valuable minerals must be recovered and concentrated. The concentrate must be chemically processed. The desired elements must be separated, purified, and converted into the chemical or metallic forms industrial customers require. Those products must meet specifications, be reproducible at commercial scale, and be offered at prices customers can afford.

And, most importantly, there must be customers.

I have repeatedly argued that critical materials supply chains should be designed backward from the requirements of original equipment manufacturers (OEMs). The final industrial customer determines what material is needed, in what form, at what purity, in what quantity, and at what price. Everything upstream must be organized to satisfy those requirements.

Wall Street frequently reverses this process. It begins with a mineral deposit, assigns an assumed future value to its contained elements, and builds a financial narrative that treats the resource's existence as evidence of an inevitable commercial opportunity. Government concern about foreign dependence then becomes a convenient justification for attracting investment capital.

In too many cases, the result is not an industrial supply chain. Instead, it creates a publicly traded security.

Some companies are developing real industrial capabilities, and some will become essential participants in the reconstruction of American manufacturing. But distinguishing these companies from promotional ventures requires technical, commercial, and financial due diligence, not enthusiasm about the geopolitical

importance of an element.

The crisis is real. The investment opportunities being advertised as solutions to it require individual examination.

Who Will Finance the Survival of an Essential Industrial Company?

The United States government has recognized the strategic danger of dependence on foreign critical materials. It has introduced financial support programs, direct investments, procurement commitments, and other mechanisms intended to encourage domestic production.

But recognition is not a solution.

Government support for a mine, a refinery, or a magnet factory does not automatically create an economically sustainable supply chain. Industrial manufacturing requires sustained demand, reliable feedstock, qualified production processes, skilled workers, and customers willing to pay prices that cover production costs.

If an American producer must compete with a foreign supplier whose costs are lower because of greater scale, accumulated technical experience, government support, or an established industrial ecosystem, the American producer may be unable to survive without some form of continuing assistance.

This raises an uncomfortable question. Who will finance an essential American industrial producer's survival until its customers are prepared to pay enough to sustain it?

The answer cannot simply be that the government will provide another grant. Grants may finance construction, but they do not

necessarily finance commercial survival. Nor can we assume that investors will indefinitely accept inadequate returns merely because a company's products are strategically important.

The IEA's \$65 billion in public financing commitments shows that governments are increasingly prepared to intervene. But public commitments are not the same as money actually disbursed, and disbursed money is not the same as a commercially operating, qualified industrial facility.

I believe government policy should focus on establishing and maintaining specific industrial capabilities whose absence creates measurable economic or national security risks. When private investment falls short, carefully structured long-term procurement agreements, customer commitments, and other support may be necessary to bridge the gap between initial production and commercial sustainability.

But such support should be tied to demonstrated technical capability, achievable production milestones, customer qualification, and realistic operating economics. Government money should not suspend economic reality.

The objective must be to create functioning industrial enterprises, not to guarantee financial returns to their promoters.

The Real Difference Between AI Investment and Industrial Investment

The extraordinary flow of capital into artificial intelligence is not evidence that investors have become more willing to accept long-term industrial risks. It may demonstrate exactly the opposite.

AI investors anticipate enormous future markets, potentially high margins, and scalable returns. Software and intellectual property can sometimes be replicated and distributed at costs far below those required to reproduce a physical manufacturing facility. Although AI infrastructure is extremely capital-intensive, the industry's financial expectations rest largely on the possibility of very large future revenues and profits.

Critical materials processing offers a different proposition. Chemical separation plants, metal production facilities, alloy plants, and other industrial operations require substantial capital investment, lengthy development periods, technical qualification, and continuous operational discipline. Markets often set their prices through industrial purchasing departments rather than consumer enthusiasm. Their margins may be modest, and customers often demand price reductions as production volumes rise.

These are precisely the kinds of businesses that financialization has made relatively unattractive in American industry.

The growing reliance on borrowed capital to finance artificial intelligence introduces another element of risk. Morgan Stanley's projection of nearly \$570 billion in AI-related debt issuance for 2026 illustrates credit markets' willingness to finance anticipated future demand. More recently, reports of increased scrutiny of AI-related borrowing suggest lenders are beginning to question whether expected revenues will justify the capital already committed.

There is nothing inherently wrong with borrowing to finance productive investment. But debt must ultimately be serviced from cash flow, and an investment's economic success cannot be established merely by the availability of borrowed money.

The contrast with critical materials is revealing. A separation plant with identified industrial customers, a proven process, and a measurable contribution to supply security may struggle to obtain financing because its projected financial returns are inadequate. An AI infrastructure venture may obtain financing based on expectations of future demand that have not yet been demonstrated.

The financial markets are not necessarily irrational in making these distinctions. Their responsibility is to evaluate risk and return for investors and lenders. But individual investors' interests are not necessarily identical to the nation's long-term economic interests.

A nation cannot assume that the industries most essential to its economic security will also offer the highest returns on capital.

Can America Become a Manufacturing Power Again?

I do not believe that the United States must become self-sufficient in every critical mineral, metal, or material. Such an objective would be economically unrealistic and, in many cases, unnecessary. International trade among reliable partners can provide supply security without requiring every nation to duplicate every industrial capability.

But a substantial difference exists between participating in an internationally diversified industrial supply chain and becoming dependent on a single foreign industrial system for materials essential to the functioning of the national economy.

The United States should seek to restore its ability to compete in manufacturing strategically and economically important

products, whether for domestic consumption or export. Achieving this objective requires more than reopening mines. It requires rebuilding selected processing, refining, metalmaking, alloying, component manufacturing, and final assembly capabilities.

Another problem is too often overlooked. Even if America rebuilds its rare-earth magnet manufacturing industry, that achievement will not automatically restore domestic production of the motors, actuators, generators, electronic assemblies, and finished products that use those magnets. Much of that downstream manufacturing has also moved overseas.

A domestically manufactured magnet has limited value to reconstructing American manufacturing if the American factory that once used it no longer exists.

This is why I regard the critical minerals crisis as part of the larger problem of American deindustrialization. The ultimate objective is not to produce critical minerals for their own sake. It is to produce the materials and components a competitive manufacturing economy requires.

The United States still possesses extraordinary scientific, engineering, entrepreneurial, and financial resources. What it lacks is a coherent system for converting those resources into sustained industrial production in sectors where immediate financial returns may be inadequate.

Industrial experience is cumulative. Years of production, process improvement, failure analysis, and customer interaction develop the ability to operate a chemical separation plant, manufacture a high-performance alloy, or produce a qualified permanent magnet. You don't acquire it by purchasing equipment and hiring consultants.

Rebuilding an industrial capability takes time and effort to

develop the knowledge, infrastructure, and workforce that were allowed to disappear.

That is why I am skeptical of claims that America's critical materials dependence can be resolved quickly, no matter how much money Washington makes available.

Is the Critical Minerals Crisis Fading, or Is Wall Street Simply Losing Interest?

Financial markets have short attention spans. A crisis becomes an investment theme; the investment theme attracts promoters; the promoters attract capital; and eventually another opportunity captures the market's imagination.

Today, that opportunity is artificial intelligence.

The IEA's reported decline in global critical minerals investment does not mean every critical mineral sector is contracting. For example, copper investment rose in 2025, while lithium and several battery-related sectors fell sharply. The industry is not homogeneous, and neither are its investment prospects.

Nevertheless, the overall decline in investment, combined with the continued concentration of processing capacity and the extraordinary scale of AI financing, raises a legitimate concern about capital allocation.

It would be a serious mistake to interpret declining investor enthusiasm for critical minerals as evidence that the underlying industrial problem has been solved. American manufacturers' dependence on foreign supplies of critical processed materials does not disappear just because investors have found a more

exciting sector.

Indeed, the expansion of artificial intelligence may intensify the problem by increasing demand for electrical equipment, energy infrastructure, specialized materials, and manufacturing capacity.

The artificial intelligence boom may also hit the industrial economy's physical limits. Capital can buy equipment and materials only if someone can produce them. A shortage of industrial capability cannot always be solved by raising prices. New production facilities still require time, technical expertise, qualification, and access to their own upstream supply chains.

The laws of chemistry, metallurgy, and economics do not change because the financial markets have discovered a new technology.

The Question America Must Answer

I began by asking why our financial markets can mobilize hundreds of billions of dollars for artificial intelligence while struggling to finance industrial capabilities whose necessity has already been established.

I believe the answer is that our financial system has become extraordinarily effective at directing capital toward opportunities promising high financial returns, but it lacks an equally effective mechanism for directing capital toward industrial capabilities whose value to the national economy may far exceed their profitability as individual enterprises.

The critical minerals crisis is not fading. What may be fading is the financial market's interest in solving it.

Speculation around critical minerals has certainly been real.

Some companies have used legitimate national security concerns to promote projects with doubtful commercial prospects. Some investors have confused geological resources with industrial products, and some government programs have failed to distinguish technical capability from promotional ambition.

But none of this invalidates the underlying industrial problem.

The International Energy Agency's estimate of \$60 billion in required investment to diversify rare-earth magnet supply chains, compared with as much as \$6.5 trillion in annual downstream production potentially exposed to Chinese export restrictions, provides a particularly powerful illustration of the economic stakes. The disparity does not mean that every proposed project deserves financing, or that \$60 billion alone would eliminate every supply-chain vulnerability. It means the economic consequences of failing to develop essential industrial capabilities can far outweigh the cost of doing so.

The United States has created a financial system that rewarded abandoning manufacturing when it improved short-term returns. We now ask that same system to finance the restoration of manufacturing, even when the required investments promise lower returns, longer development periods, and greater operational risks than alternative uses of capital.

Why should we expect it to behave differently?

The fundamental question facing America is therefore not whether we can find enough critical minerals, or even whether we can raise enough capital to process them. The question is whether a nation whose financial system has rewarded abandoning manufacturing can rebuild a competitive industrial economy without first changing that system's incentives.

I do not believe it can.

This does not mean that artificial intelligence should receive less investment simply because critical materials require more. It means private financial markets cannot solely determine America's industrial future. If certain manufacturing capabilities are essential to economic and national security, public policy, industrial customers, and financial institutions must develop mechanisms to sustain them until they can operate competitively.

We must also acknowledge that some strategically essential capabilities may never produce the returns speculative financial markets demand. Their value may lie in the industrial activity they enable rather than the profits they generate directly.

Until we confront that distinction, the critical minerals crisis will remain unresolved, regardless of how many mines are announced, how many government grants are awarded, or how many speculative fortunes are created.

Artificial intelligence may become one of this century's most important technological developments. It may also become one of the greatest speculative financial episodes in modern history. Those possibilities are not mutually exclusive.

But if artificial intelligence eventually enables America to design extraordinary new products that it must then ask other nations to manufacture, we will have achieved something remarkable indeed: the ability to imagine an industrial future that we no longer possess the industrial capacity to build.

A nation cannot remain an industrial superpower by financing product imagination while abandoning the capacity to manufacture them.

Follow where value is added.