The Root Cause of Our Industrial Ignorance

written by Jack Lifton | November 20, 2026

“Industrial reality is multivariable. Until our journalists, investors, and policymakers learn to think in those terms, we will keep confusing the announcement of industrial progress with its achievement.” – Jack Lifton, Co-Founder & Co-Chair, Critical Minerals Institute (CMI).

I have been involved in producing, processing, marketing, and trading specialized metals and materials for more than sixty years. During that time, I have watched not only the decline of American industrial capability but also the parallel decline of the ability of journalists, politicians, and even many investors to understand what industrial capability actually means. I believe these two developments are related, and their relationship is now a serious obstacle to restoring American manufacturing.

There was a time when specialized journalism was practiced by people who knew something about the industries they covered. Reporters covering the automobile industry understood manufacturing, production economics, and the relationship between suppliers and original equipment manufacturers. Those covering metals and mining understood the differences among mineral resources, mining, beneficiation, chemical processing, refining, and the manufacture of useful industrial products. They knew a mine was not a refinery, a refinery was not a metal production facility, and none of these was necessarily capable of producing a material a manufacturer could actually use.

Today, much reporting on critical minerals, metals, and materials is done by journalists whose principal qualification

seems to be their ability to write about a subject rather than their knowledge of it. I do not mean to suggest that a journalist must be a metallurgist, a chemist, or a mining engineer. I do suggest that anyone reporting on an industrial sector ought to understand its basic technologies, economics, and history, and should have enough intellectual curiosity to recognize the limits of his or her own knowledge.

The problem is compounded by what appears to me to be an increasingly inadequate education in economics, history, and, most particularly, industrial history. Without an understanding of how modern industrial economies developed, how supply chains evolved, and why certain industries became concentrated in particular countries, a reporter has little basis for evaluating claims about how easily those industries can be recreated elsewhere.

The modern American critical minerals discussion is an almost perfect illustration of this problem. A company announces a mineral resource, and the headline announces the discovery of a solution to America’s dependence on foreign materials. Another company announces a pilot plant, and the story becomes one of imminent commercial production. A government agency announces funding for a proposed processing facility, and the press reports another step toward American supply chain independence. At each stage, the distinction between an intention, a technical demonstration, a qualified commercial product, and a profitable ongoing industrial operation is blurred or simply ignored.

The public is consequently led to believe that building an industrial supply chain is primarily a matter of finding a mineral deposit, providing sufficient capital, and constructing a plant. The real problems of process chemistry, engineering scale-up, product specifications, customer qualification, operating costs, workforce development, logistics, and market

access are treated as details to work out later. In reality, those details are the industrial business itself.

An industrial supply chain is not simply a collection of factories. It is an economically integrated system of producers and customers, each of whom must deliver a product that meets the next customer’s specifications, in the required quantity, at the required time, at an acceptable cost, and with reproducible quality. The existence of one component does not guarantee the existence or commercial viability of the others. A rare earth separation plant, for example, is of little use to a domestic magnet manufacturer unless it produces the particular rare earth compounds required and unless qualified facilities can convert those compounds into metals, alloys, and ultimately magnets.

This brings me to a phrase that I have come to regard as symptomatic of a much larger intellectual problem: **“root cause.”**

I hear and read this phrase constantly. Journalists, management consultants, corporate executives, and government officials are forever seeking the root cause of a problem, as though every complex situation can be reduced to a single underlying factor that, once identified and corrected, will make the problem disappear.

This is an attractive proposition. It is also, in many circumstances, nonsense.

There are certainly situations in which a specific failure can be traced to a particular cause. A defective component may cause a machine to stop operating. A contaminated reagent may ruin a chemical process. In such cases, root cause analysis can be a useful engineering discipline. But success in investigating a defined technical failure does not mean complex economic, industrial, or political situations can be understood the same way.

The real world is multivariable. Industrial outcomes result from interacting technological, economic, financial, historical, geographical, and human factors. These factors do not necessarily operate independently. They influence one another, and their relative importance changes with time and circumstance. A shortage of skilled labor may delay plant commissioning, increasing financing costs, which in turn may force changes in design or capacity, which may then make it uncompetitive in its intended market. Which of these is the root cause of the failure?

The question itself may be meaningless.

Consider the present American effort to establish a domestic rare earth permanent magnet supply chain. Is the problem a shortage of mineral resources? A lack of separation facilities? An absence of commercially competitive metal and alloy production? Insufficient magnet manufacturing capacity? A shortage of experienced engineers and technicians? The absence of customers willing to qualify and purchase domestically manufactured products at prices that sustain production? Or is it investors' inability to earn a satisfactory return on the enormous capital expenditures required?

The answer is that all of these factors matter, but not necessarily equally, and not necessarily at the same time. More importantly, they interact. Solving one problem does not automatically solve the others, and may even create new ones.

Yet our public discussion repeatedly reduces this complex industrial problem to a single convenient explanation. China dominates because American companies lack capital. Therefore, provide capital. China dominates because America has insufficient mining. Therefore, open mines. China dominates because its government subsidizes industry. Therefore, subsidize

American industry. Each proposition contains some truth, but none sufficiently explains the industrial situation, and none alone provides a workable solution.

China’s industrial development history matters here. China’s position in the critical materials supply chains was not created overnight, nor was it simply the result of access to mineral deposits or cheap labor. It emerged from decades of investment, technical learning, workforce development, market expansion, and the progressive integration of manufacturing activities. Chinese producers developed capabilities in response to existing and growing industrial demand. Their suppliers and customers evolved together. The result was not merely production capacity but a functioning industrial system.

This is why I have repeatedly argued that industrial supply chains must be constructed backward from the requirements of the ultimate customer. The manufacturer of an automobile, an aircraft, a medical instrument, or an electrical generator does not purchase a mineral resource. It purchases components and materials that meet specifications established by engineering, manufacturing, safety, reliability, and economic requirements. Those requirements determine the necessary intermediate products, and those products determine the processes and raw materials that must be available.

This is also why I distinguish between capacity and capability. A plant may have the nominal capacity to produce thousands of tons of material annually without having demonstrated the capability to manufacture a single ton that meets a particular customer’s specifications at a competitive cost. Reporting the announced capacity without examining the demonstrated capability is not industrial journalism. It is merely repeating a promotional statement.

Unfortunately, the same oversimplification that characterizes much contemporary reporting has crept into industrial policy. Government officials are encouraged to identify a problem, announce a solution, allocate funding, and declare progress. The announcement itself becomes the measure of achievement. The difficult work of determining whether the proposed enterprise can operate commercially, qualify its products, obtain customers, and survive without permanent public support receives far less attention.

I do not believe this is simply a matter of political ideology. The intellectual weakness is broader than that. It is a failure to understand that industrial development is an evolutionary process involving many independent decision-makers, each operating under different technical and economic constraints. Government can influence that process, sometimes substantially, but it cannot eliminate those constraints by legislation, executive order, or financial commitment.

The decline of specialized journalism makes this situation worse because the press no longer consistently performs one of its most important functions: testing the claims of those who seek public attention and public money. A knowledgeable reporter should ask whether a proposed facility has demonstrated its process at a commercially relevant scale, whether customers have qualified its products, whether its projected operating costs are credible, and whether the customers and markets it proposes to serve actually exist. These are not obscure technical questions. They are the elementary questions that determine whether an industrial enterprise is real.

Instead, the public is too often presented with a succession of announcements whose cumulative effect creates the impression of progress without providing evidence of production. Investors then confuse government financial support with commercial

validation, and politicians confuse projected capacity with industrial independence.

Another consequence of the decline in historical and economic literacy is particularly troubling. It encourages the belief that restoring an industrial base is simply reversing the decisions that caused its decline. If American manufacturing moved overseas because labor was cheaper, then tariffs or subsidies should bring it back. If domestic refining disappeared because foreign competitors offered lower prices, then guaranteed prices should restore it. If a particular industry was lost through insufficient investment, then providing investment should recreate it.

But history does not run backward. The engineers, skilled workers, suppliers, customers, and institutions that supported an industry may no longer exist. The technology may have changed. The economics may have changed. The market may have changed. Recreating an industry under today's conditions is not the same undertaking as preserving it would have been decades ago.

Much of our public discussion misses that industrial development is a system, not a series of isolated projects. This is not an argument against public investment or industrial policy. It is an argument for understanding what those investments and policies can realistically accomplish, and for measuring their success by actual commercial production rather than announced intentions.

Journalists who understand these distinctions can make an enormous contribution to public policy by exposing unrealistic claims before they become expensive commitments. Those who do not may unintentionally help promote projects whose technical or commercial foundations have never been adequately examined.

I began by discussing the decline of specialized journalism, but I have arrived at a larger issue. The problem is not merely that too many reporters lack technical knowledge. It is that too much of our public discourse has abandoned the discipline of examining complex problems as systems of interacting causes. We prefer simple explanations because they produce simple stories, and we prefer simple stories because they promise simple solutions.

The industrial world does not accommodate that preference.

Perhaps, then, I should conclude by identifying what I believe to be the root cause of much of our ineffective industrial reporting and policymaking. It is the belief that every problem has a root cause.

The irony is intentional. The conclusion is not.

Industrial reality is multivariable. Until our journalists, investors, and policymakers learn to think in those terms, we will keep confusing the announcement of industrial progress with its achievement.