

Capitalism, Supply Chains and Democracy

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July 27, 2025

Abstract

Global supply chains are arteries through which the lifeblood of civilization flows. The models that govern our understanding of global supply chains have long been rooted in the grammar of efficiency—optimization, logistics, and cost. Yet, as the world has revealed itself to be not merely complex but also politically entangled, such models prove insufficient. To better grasp the true nature of supply chains in the twenty-first century, we must elevate our frameworks to account for institutions, ideologies, and the exercise of power. In short, we must allow political economy to sit at the same table as operations research.

Operations Management (OM) has made important strides by incorporating concepts from microeconomics to study decentralized supply chains in addition to developing sophisticated optimization and decision support systems that design, plan and operate global supply chains. While such integration has enriched firm-level and inter-firm decision-making, it remains largely silent on macro-level political forces that shape the environment in which these supply chains operate. Trade policy, regulatory regimes, geopolitical risk, and institutional quality are not exogenous shocks to be endured, but structural features that must be modeled.

Through the lens of POEM—an integrative agenda combining Political Economy and Operations Management—we could examine how varieties of capitalism and forms of democracy shape the structure and function of global supply chains. Nowhere is this more evident than in the fractured landscape of sustainability policy, where advances are frequently undone by ideological oscillation and institutional inertia.

To make sense of this reality, I suggest we consider new conceptual and mathematical tools: political risk metrics, institutional constraint variables, and game-theoretic models that treat firms, regulators, and voters (who can be influenced) as strategic actors. These additions are not philosophical luxuries but empirical necessities. For without them, our theories risk describing a world that no longer exists.

The central claim is simple: if we are to design, evaluate and operate resilient and sustainable supply chains, we must stop pretending that politics is exogenous noise and that it can be ignored. It is signal. And we must learn to model how it is being manipulated.

1 Introduction

Global supply chains (GSCs) form the backbone of economic activity, connecting producers, suppliers, and consumers across continents. However, as recent disruptions have demonstrated, traditional operations management (OM) perspectives alone, focusing mainly on efficiency, optimization, and logistics, are insufficient to understand and manage these dynamic and multilayered systems. Increasingly, political economy (PE) factors, such as power relations, institutional frameworks, national interests, geopolitical conflicts, and regulatory environments, play critical roles in shaping GSCs (Dai and Tang 2024). Integrating these dimensions requires developing new concepts, constructs, and mathematical models to capture the complex reality of global supply chains. If our research is to make a meaningful impact (Nordhaus 2019), I believe our models *cannot ignore politics*¹ (Gale 2018)², that is, we need to embed models from *political economics* into our *operations management* formulations in some non-trivial manner.

The purpose of this short note is to introduce some concepts from Political Economics (PE) to Operations Management (OM) researchers (including PhD students), while providing a brief history of politics in the U.S., focusing on its impact on *Sustainability*, as a starting point for a discussion towards a research agenda that I call *POEM: Interlacing Political Economics and Operations Management*. We are already comfortable mingling Microeconomics with Operations Management (Tayur et al. 1998); we should also consider fusing models from Macroeconomics (Romer 1994, Acemoglu 2009, Acemoglu and Tahbaz-Salehi 2023, Passacantando and Raciti 2026) and beyond, that is, from Political Economy (Dixit 1998, Persson and Tabellini 2002).

2 Varieties of Capitalism

Capitalism is an economic system characterized by private ownership of the means of production, market-based exchange, wage labor, and the pursuit of profit through capital accumulation (Kocka 2016).

The Varieties of Capitalism (VoC) framework is a way of comparing how capitalist economies are organized and function across different countries, emphasizing that capitalism does not take a single, universal form but instead varies along several distinct types. The most influential version, formulated by Hall and Soskice (2001), identifies two ideal types:

¹Beyond physical goods, there is talk of the need of *Data Center Diplomacy* to shape the future of AI infrastructure, attracting massive flows of capital from various countries.

²Fred P. Gale’s *The Political Economy of Sustainability* presents a compelling critique of why sustainable development has largely failed to take root despite decades of policy attention. At the heart of Gale’s argument is the concept of “value monism”: the tendency of dominant political and economic ideologies—whether neoliberal, Marxist, or nationalist—to prioritize only one form of economic value, such as exchange, labor, or use, at the expense of others. This narrow framing, he argues, undermines efforts to achieve sustainability, which by nature requires a pluralistic approach. He proposes an alternative framework based on four fundamental economic values: exchange, labor, use, and function (the latter referring to ecological and systemic contributions). True sustainability value, he contends, is not reducible to any single metric or perspective but is emergent, arising through “tetravaluation”—a participatory, reflexive process where stakeholders deliberate to balance all four values in specific contexts. The book critiques common sustainability metrics (like GDP, HDI, or ecological footprint) as inherently partial, and explores how institutions—from businesses and governments to individual preference formation—can integrate tetravaluation into their decision-making. Gale emphasizes that sustainability is a politically negotiated process to trade-off across ecological, economic, social, and cultural dimensions.

1. Liberal Market Economies (LMEs): Rely primarily on market mechanisms for coordination between firms and other actors. Typical examples: United States, United Kingdom. Characterized by decentralized wage bargaining, fluid labor markets, stock market-based finance, and arm's-length relationships between companies.
2. Coordinated Market Economies (CMEs): Depend on non-market forms of coordination, such as long-term relationships between firms, workers, banks, and the state. Typical examples: Germany, Japan, Sweden. Characterized by industry-wide bargaining, long-term employment, bank-based finance, and collaboration in training and innovation.

Other ways to categorize capitalism include:

- State-guided capitalism (government steers sectors)
- Oligarchic capitalism (wealth/power concentrated among elites)
- Welfare capitalism (free markets with a robust social safety net)
- Corporate capitalism (dominance of large corporations)
- Laissez-faire capitalism (minimal state intervention)

These varieties can overlap or coexist in practice, and a society may change over time. The United States now is considered a prime example of *corporate capitalism* (Reisman 2004). This economic system in the U.S. is characterized by the dominance of large, hierarchical corporations that control significant portions of production, investment, and employment. Key features include separation of ownership and management, limited liability for shareholders, and market-driven prices shaped by supply and demand. Corporate executives typically run these entities through hierarchical structures, with shareholders delegating decision-making power to them. Corporate capitalism in the U.S. emerged strongly during the late 19th century, driven by industrialization and technological advances, replacing family-owned firms with large corporations. This system has allowed economic growth and innovation - raising living standards dramatically - but also faces criticism for creating concentrated economic and political power, social inequality, and environmental degradation. In the U.S., corporate capitalism also entails political influence by corporations, often affecting government policies and regulations in ways that may favor large business interests. Despite criticisms, it remains central to the functioning of the American economy, reflecting a market economy where private ownership and competition predominate.

3 Types of Democracies

Democracy is a system of governance in which power is vested in the citizens, who exercise it directly or through elected representatives under conditions of political equality and rule of law.

There are several types of democracy, each defined by how political power is exercised and how citizens participate. The main types include:

1. Direct Democracy: Citizens directly vote on laws and policies rather than electing representatives. Classic example is ancient Athens. Modern forms include referendums and citizen initiatives.
2. Representative Democracy: Citizens elect representatives to make decisions on their behalf. Within this, there are subtypes:
 - Liberal Democracy: A representative democracy with rule of law, protection of individual rights, and limits on government power.
 - Parliamentary Democracy: The executive (prime minister and cabinet) is chosen from the legislature, e.g., the UK.
 - Presidential Democracy: The president is separately elected from the legislature and serves as head of state and government, e.g., the US and France.
3. Participatory Democracy: A model emphasizing broad, direct citizen involvement beyond voting, including local meetings and referenda.
4. Pluralist Democracy: Power is distributed among many organized interest groups competing to influence policy.
5. Elite Democracy: Political power is concentrated in the hands of a small, wealthy, or elite group, who largely shape decision-making.
6. Constitutional Democracy: Democracy governed by a constitution that limits government power and protects rights.
7. Federal Democracy: Power divided between central and regional governments.
8. Social Democracy: Combines democratic governance with strong social welfare policies and economic equality efforts.

These types can overlap or coexist in practice. For example, most modern democracies mix representative democracy with participatory elements and constitutional limits.

4 Capitalism and Democracy in the U.S.

The U.S. capitalist system from 1980s onward (see Table 1) has been largely characterized as corporate capitalism, marked by the dominance of large corporations and financial institutions. The Reagan era initiated neoliberalism, featuring deregulation, tax cuts, supply-side policies, and financial liberalization. These themes persisted through subsequent administrations, albeit with some regulatory responses after

Years	President	Democracy	Variety of Corporate Capitalism
1981–1989	Ronald Reagan Republican	C,R,P	Neoliberal reform: deregulation, supply-side economics, finance sector growth.
1989–1993	George H. W. Bush Republican	C,R,P,E	Emphasis on free markets, financial liberalization, globalization.
1993–2001	Bill Clinton Democrat	C,R,P	Neoliberal globalization; “New Democrat”; market-friendly reforms.
2001–2009	George W. Bush Republican	E,R,P,E	Finance dominance; housing bubble and financial crisis.
2009–2017	Barack Obama Democrat	C,R,P,E	Regulatory attempts post-crisis; ongoing finance capital influence.
2017–2021	Donald Trump Republican	C,R,Po,E	Strong elite influence, populist-nationalist elements, deregulation.
2021–2025	Joe Biden Democrat	C,R,P,E	State intervention in infrastructure, climate policy, addressing inequality.
2025–	Donald Trump Republican	C,R,Po	Populist-nationalist, focus on international trade and energy independence.

Table 1: 1981-present: Capitalism and Democracy in the U.S.

Note: Constitutional (C), Representative (R), Pluralist (P), Populist (Po), Elite (E).

the 2008 financial crisis. The system shows features typical of advanced corporate capitalism, including finance sector prominence, market-driven innovation, and political influence by corporate elites. Recent decades also exhibit tensions between neoliberal market policies and increasing concerns about inequality and state intervention, especially under Biden’s administration. Populist elements during Trump’s terms reflect political dynamics influencing capitalism’s functioning but do not fundamentally alter its corporate-dominated character. This recent history aligns with the broader findings in economic history and political economy literature that classify contemporary U.S. capitalism as a mature, corporate-driven and finance-centric model shaped by neoliberal policy since the 1980s.

If I could give it a name, I would now call³ the US a *Capitalist Democracy*, rather than being *Democratic Capitalism*, which it might have been⁴ during 1930-1970, when *The Great Depression* triggered a major shift⁵ to active state intervention. The federal government under FDR’s New Deal implemented widespread regulatory reforms, social welfare programs, and public works to stabilize and stimulate the economy. Post-WWII, Keynesian economic policies dominated, with government playing a central role in macroeconomic management, social safety nets, public investment (e.g., interstate highway system), and fostering technological innovation through the military and space programs. This period saw the expansion of the welfare state and direct regulation of business in an effort to ensure full employment and economic growth.

³To indicate that forces of Capitalism are more powerful than those supporting Democracy.

⁴Managed Capitalism, or Keynesian. See also Stiglitz (2010) that focuses on the 2008 financial crisis.

⁵Early American capitalism was relatively laissez-faire, with limited direct government intervention. The economy was driven by commerce and industrial expansion, often relying on private capital and market mechanisms with some state involvement in infrastructure and property rights.

5 Impact on Sustainability

Sustainability is the principle of meeting the present needs without compromising the ability of future generations to meet their own, balancing environmental integrity, social equity, and economic viability.

State intervention in the US economy has seen substantial shifts, and these have been consistently mirrored in federal sustainability and environmental policy. The character and degree of intervention, whether robust, limited, or reactive, have profoundly shaped the approach of America to sustainability in different eras.

1. Early Regulatory Growth (Pre-1980s) Postwar to 1970s: The US saw burgeoning environmental regulation. Key sustainability laws included

- National Environmental Policy Act (NEPA) (1970): Mandated environmental impact assessments for federal projects.
- Clean Air Act (1970) and Clean Water Act (1972): Set standards for emissions and water quality, creating a formal federal role in managing pollution.
- Creation of the Environmental Protection Agency (EPA) in 1970 to enforce regulations and promote sustainability nationwide.

This period reflected robust state intervention using regulation to address pollution and promote environmental stewardship.

2. Neoliberal Turn and Deregulation (1980s–2000s) The Reagan Era

- Major deregulation: Budget and staff cuts at the EPA, rollbacks of regulatory authority, and a shift toward voluntary compliance and cooperative regulation.
- High-profile moves symbolizing policy retreat, e.g., removal of solar panels from the White House, installed by President Carter.

Environmental protection was seen as an impediment to economic growth, with corporate interests favored over sustainability.

3. Part of Reagan Era, George H. W. Bush and Clinton Administrations

- Some regulatory innovation, such as cap-and-trade systems for sulfur dioxide (Acid Rain Program).

The Clinton era saw attempts to harmonize economic growth with environmentalism, but free-market approaches (neoliberalism) continued to dominate—resulting in limited new federal sustainability policies.

4. George W. Bush Era

- Emphasis on market-friendly solutions over sustainability; significant focus on fossil fuel development.
- Some executive actions aimed at reducing air pollution (e.g., Clean Air Interstate Rule, Clean Air Mercury Rule), though courts struck down or weakened several efforts.
- The US refused to ratify the Kyoto Protocol, citing economic costs—showcasing the limits of international sustainability commitments.

5. Renewed Federal Climate Action (Obama Era)

- Stronger sustainability focus: Clean Power Plan (targeted utility CO₂ emissions), vehicle efficiency standards, and methane reduction pledges.
- US joined the Paris Agreement in 2015, committing to significant greenhouse gas cuts.

However, many major initiatives faced legal and political barriers and were only partially implemented.

6. Retrenchment and Rollback (Trump, first term, Era)

- Over 100 environmental rollbacks: Dismantled regulations limiting power plant and vehicle emissions, loosened water quality standards, and removed protections for numerous wetlands.
- The federal state adopted an explicit anti-regulatory stance; sustainability was subordinated to energy development, particularly fossil fuels.

7. Selective Reinvention and Investment (Biden Era)

- Immediate restoration of climate action: Rejoined the Paris Agreement.
- Canceled the Keystone XL pipeline permit, paused oil and gas leasing on federal lands (though fossil fuel production remained high due to legal and market factors).
- Justice40 Initiative aimed to direct 40% of federal sustainability investment benefits to marginalized communities.
- Investments in clean energy and efficiency via the Inflation Reduction Act of 2022.

Despite new sustainability investments, ongoing oil and gas approvals (e.g., Willow project), legal limits (e.g., Supreme Court rulings limiting EPA power), and persistence of record fossil fuel production have curtailed the impact of some initiatives.

8. The second term of Trump is in progress, and is continuing—and in many cases intensifying—the sustainability-related policies initiated during his first term. These moves collectively push further away from climate mitigation, renewable energy expansion, and general hostility towards Climate Science.

- Paris Agreement Withdrawal: Trump signed Executive Order 14162 to withdraw the U.S. from the Paris Agreement again, nullifying U.S. climate pledges and canceling related funding under Congress’s International Climate Finance Plan.
- EPA Rollbacks: The administration is reversing key climate regulations, targeting the 2009 endangerment finding underpinning greenhouse gas standards, repealing vehicle emissions rules, and halting EV incentives and infrastructure funding, thereby weakening national ability to curb carbon emissions.
- Dismantling National Environmental Protection Act (NEPA) and Social Cost of Carbon: Trump rescinded the Council on Environmental Quality (CEQ) NEPA regulations, eliminating mandatory environmental impact assessments, and disbanded the Interagency Working Group on the social cost of carbon, which undermines economic analysis that factors in climate risks.
- Cuts to major government environmental organizations.

In sum, the trajectory of US (different from Europe, see Table 2) sustainability policy—the stringency, ambition, and stability of climate and environmental reforms—reflects the evolving degree and form of state intervention shaped by broader economic ideology (presenting sustainability as opposing economic growth, or vice-versa, as by Degrowth (et al eds)) and political coalitions. Periods of assertive federal intervention tend to yield stronger advances on sustainability; periods of retrenchment or deregulation generally see stagnation or reversal. These flip-flops⁶ are costly and add to uncertainty and variability and risk in GSCs.

Country	National Climate Law	Legal Emission Targets	Renewable Strategy	EPR/Waste policy
Sweden	2017 Climate Act	Net-zero by 2045	Coal phased out	Pioneered EPR in 1990
UK	2008 Climate Act	Net-zero by 2050	Coal exit	EPR following EU
Germany	Energiewende 2010	80-95 % cut by 2050	Nuclear, coal flip-flop	EPR mandated by EU
France	No focused law	Varied	Limited strategy	2020 circular economy law

Table 2: Sustainability policies outside the U.S. Note: EPR stands for Extended Producer Responsibility, a policy approach that makes producers responsible for the entire lifecycle of their products, especially for take-back, recycling, and final disposal after consumer use.

6 Political Economy constructs for Supply Chains

Political economy provides proven frameworks for understanding how political institutions, voter preferences, interest groups, and policy regimes influence economic outcomes. For example, Persson and Tabellini (2002) formalizes how political accountability shapes public policies, including trade and industrial regulations. They emphasize that politicians’ choices depend on electoral incentives, interest group pressures, and checks and balances.

⁶Germany has shown significant inconsistency in its coal policy, especially in recent years, which many commentators and analysts have described as a “flip-flop.” The country passed a law in 2020 to phase out coal by 2038 as part of its climate commitments. Yet, following energy shortages triggered by Russia’s invasion of Ukraine and the reduction of Russian gas supplies, Germany restarted or extended operation of several coal-fired power plants, despite this move opposing its earlier climate policy commitments.

Key PE constructs applicable to GSCs include:

1. **Institutional Constraints:** Trade policies, tariffs, export controls, and labor regulations create external boundaries within which supply chain decisions are made.
2. **Political Risk and Uncertainty:** Changes in government, populist backlashes, or geopolitical conflicts introduce uncertainty that affects sourcing strategies and investment decisions.
3. **Lobbying and Regulatory Capture:** Firms and industries use political influence to shape regulations that advantage certain supply chain arrangements.
4. **National Security and Strategic Autonomy:** Governments' desire to protect critical industries or technologies may prompt reshoring or friendshoring, complicating purely cost-based supply chain design.

These phenomena are rarely captured by classical inventory or network optimization models but significantly impact supply chain resilience and configuration.

To construct a unified analytical framework, we must add layers to traditional OM models that explicitly incorporate political economy variables. Potential new constructs include:

- **Political Cost Parameters:** Quantify costs imposed by tariffs, sanctions, or compliance with politically motivated regulations.
- **Political Risk Metrics:** Embed probabilistic transition models for regime change due to elections and policy shifts that influence supply chain nodes or links.
- **Institutional Governance Variables:** Differentiate supply chain interactions based on the quality and stability of political institutions in sourcing countries.
- **Stakeholder Political Influence Indices:** Measure the capability of firms or sectors to lobby or influence policy environments affecting supply chain decisions.

By introducing such parameters, models can more accurately depict the cost-benefit landscape executives face when designing GSC strategy in the real world.

From a mathematical modeling standpoint, POEM encourages:

- **Stochastic Programming with Political Scenarios:** Embed political risk scenarios, such as tariff hikes or embargoes, within stochastic optimization frameworks for supply chain design. Firms optimize over expected costs and risks across alternative political futures.
- **Game-Theoretic Models of Multi-Actor Political-Economic Interaction:** Model supply chains as arenas where states, firms, and multilateral institutions engage strategically, influencing media and citizenry, affecting political and government bureaucratic leadership, shaping policies and market access. This could extend the classical Stackelberg or Nash frameworks to international political economy.

- **Multi-Objective Optimization:** Incorporate political sustainability, compliance, and reputational concerns as explicit objectives alongside cost and service levels.
- **Network Models with Institutional Layers:** Overlay supply chain networks with political-institutional constraints modeled as capacity or flow restrictions dynamically changing with geopolitical developments.

These mathematical tools would enhance predictive power and prescriptive insight into supply chain resilience, reconfiguration, and risk mitigation.

Empirical research applying POEM principles can reveal how political economy considerations manifest in supply chain adjustments. For example:

- Firms increasingly engage in friendshoring, sourcing from politically allied countries, balancing economic efficiency with geopolitical alignment.
- Managerial political skill improves integration and coordination across supply chain tiers by navigating organizational politics that mirror broader political challenges.
- Recognition of political agency in supply chains highlights that firms increasingly act as multi-national political actors with responsibilities akin to states, responding to regulatory and social pressures.

The implications are clear: Successful supply chain strategy and operations now demands political acumen, stakeholder engagement beyond suppliers and customers, and dynamic reconfiguration capabilities to respond to political shocks. This goes beyond sustainability as exemplified next.

6.1 Three Contemporary Topics

De-risking Global Supply Chains. This is a multidimensional process shaped by geopolitics, not just logistics (Dai and Tang 2024). Using the POEM lens, it becomes clear that traditional OM models focused on cost and efficiency are inadequate. The four interdependent flows—material, information, financial, and human—are being restructured by strategic state behavior. Material flows are influenced by friendshoring and reshoring policies, while information flows are increasingly constrained by data sovereignty and cybersecurity regimes. Financial flows are being redirected due to investment restrictions and the rise of alternative systems like BRICS+’s challenge to SWIFT and the U.S. dollar. Human flows, such as talent migration and expatriate movement, are disrupted by national security concerns and visa restrictions. These changes demand new OM models that incorporate political risk, regulatory fragmentation, and institutional quality. De-risking is a strategic interaction, not a unilateral move. POEM highlights that supply chains today are political artifacts as much as they are economic systems—requiring firms to adopt tools from political economy to model risks, anticipate policy shifts, and design resilient, adaptive networks.

Conflict Minerals and Global Supply Chains. The sourcing and trade of conflict minerals—such as tantalum, tin, tungsten, and gold (collectively known as 3TG)—exemplify the entanglement of political in-

stability, institutional weakness, and economic necessity in global supply chains. Traditional OM approaches, focused on cost efficiency and logistics, fail to account for the institutional vacuums and power asymmetries in regions like the Democratic Republic of Congo, where mineral extraction often fuels armed conflict. The POEM framework highlights the need to model institutional governance quality, political risk, and stakeholder influence as endogenous variables in supply chain design. For example, firms must navigate evolving regulatory regimes such as Dodd-Frank 1502, growing consumer and investor scrutiny, and the reputational costs of association with human rights abuses. Incorporating political risk metrics and compliance constraints within stochastic optimization models enables firms to assess the true cost of sourcing decisions—not merely in dollars, but in social and political currency. Moreover, global firms act not only as passive participants but as political actors shaping governance through supplier audits, local partnerships, and multi-stakeholder initiatives. A POEM-informed supply chain does not treat ethical sourcing as an externality but models it as a dynamic interaction between logistics, law, and legitimacy.

Computing for AI and Global Supply Chains. The rapid rise of generative AI and large-scale machine learning has created unprecedented demand for computing infrastructure—particularly high-performance data centers, specialized semiconductor supply chains, and access to critical minerals like cobalt and rare earth elements. These AI supply chains, far from being neutral technical systems, are deeply shaped by geopolitical contestation, regulatory maneuvering, and strategic state intervention. The POEM framework urges OM scholars and practitioners to recognize that the global race to build AI infrastructure is not merely a matter of cost, latency, and throughput, but also of industrial policy, national security, and international alliances. The recent surge in “Data Center Diplomacy”—where nations offer tax incentives, energy subsidies, and geopolitical alignment to attract data infrastructure investment—requires models that integrate institutional constraints and political cost parameters. For example, friendshoring strategies for semiconductor fabrication (e.g., U.S.–Taiwan or U.S.–India tech partnerships) must be evaluated not only by operational metrics but by the stability of intergovernmental relations and regulatory convergence. Moreover, political influence indices—such as lobbying power in export controls or environmental permitting—affect where and how AI infrastructure is deployed. POEM thus provides the analytical scaffolding to understand and design computing supply chains in a world where the battle for algorithmic supremacy is as much political as it is computational.

7 Looking Ahead

The complex challenges of modern global supply chains demand we produce new conceptual, empirical, and mathematical frameworks. The proposed POEM framework serves as a starting point, an exhortation, if you will, to develop:

- Novel constructs that capture political cost, risk, power, and institutional quality in supply chains.
- Mathematical models blending stochastic optimization, game theory, and institutional economics.

- Empirical studies on the interplay between political dynamics and supply chain performance.
- Managerial tools emphasizing political intelligence.

This interdisciplinary synthesis will not only improve academic understanding, but equip practitioners and policy makers to navigate a world where political economy and operations management are inseparably interlaced realities, as we aim to be sustainable without sacrificing economic prosperity (Nordhaus 2021).

Acknowledgments. Thanks to Alan Scheller-Wolf and Nilsu Uzunlar for their comments on an earlier draft.

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