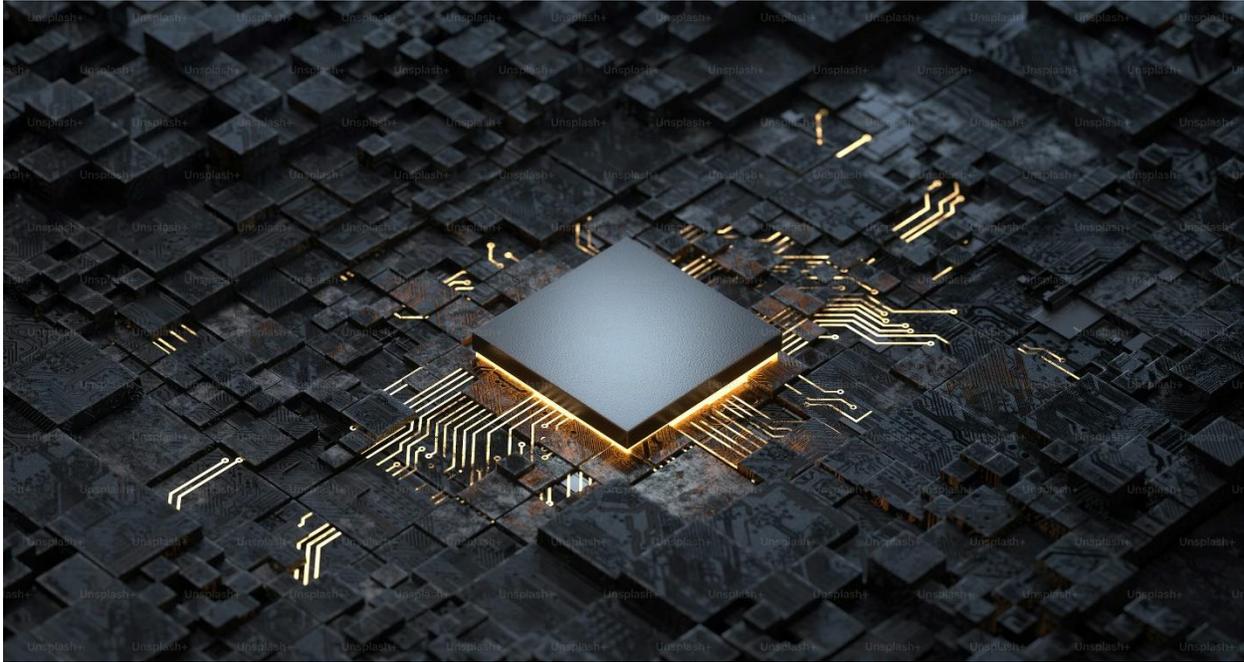


# Africa's Indispensable Role in Powering Silicon Valley

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By [Ken D. Johnson](#)

California's economy, with a GDP of approximately \$3.9 trillion in 2023, according to the U.S. Bureau of Economic Analysis (BEA), is the largest of any U.S. state. If California were an independent nation, it would be the fifth-largest economy globally, surpassing the United Kingdom and India. A significant driver of this immense economic output is the state's technology sector, which includes information technology, software development, and semiconductor production, centered in Silicon Valley. With an estimated value of \$623.4 billion to the state's economy in 2022—about 19% of California's GDP according to the California Foundation for Commerce and Education (CFCE)—this sector forms the backbone of the state's economic dominance.

However, beneath this thriving innovation hub lies a little-known but essential fact—Silicon Valley's success is inextricably tied to minerals, many of which come from Africa. Without these minerals, advancements in tech and green energy would stall.

## **Africa's Minerals: Silicon Valley's Hidden Backbone**

When we think about Silicon Valley's achievements, we focus on groundbreaking innovations and billion-dollar startups. What often gets overlooked is the region's reliance

on critical minerals sourced from African nations. Africa holds a significant portion of the world's reserves of essential materials like cobalt, tantalum, tin, lithium, and gold, all crucial for producing the semiconductors and electronics that fuel technological progress.

Take cobalt, for example—it's indispensable for lithium-ion batteries used in smartphones and electric vehicles. Nearly 70% of the global cobalt supply comes from the Democratic Republic of Congo (DRC). Then there's tantalum, another critical mineral used in electronic capacitors, predominantly extracted from the DRC and Rwanda. Countries like Ghana, South Africa, and Mali are also prominent producers of gold, highly valued for its excellent conductivity in electronic devices.

As Silicon Valley grows, particularly in clean energy and electric vehicles, demand for these minerals will continue to surge. Zimbabwe and Namibia, rich in lithium reserves, are quickly emerging as major players in the global supply chain. However, much of Silicon Valley's mineral supply comes indirectly through third parties, leaving the tech sector vulnerable to disruptions. This situation urgently requires Silicon Valley to rethink its supply chain strategy.

### **Geopolitical Risks: The Growing Threat to Silicon Valley's Mineral Supply**

Africa's mineral wealth is a double-edged sword for Silicon Valley. While it provides the materials that keep the tech engine running, the influence of foreign powers—most notably on African mining operations poses a significant risk. Chinese companies dominate many of the mining sectors in Africa, particularly in cobalt-rich regions of the DRC. This state of affairs gives China a disproportionate level of control over global supply chains.

The 2024 renegotiation of the Sicominex copper and cobalt joint venture between China and the DRC further consolidated China's grip on the region's mineral resources. This concentration of control creates a significant risk of price volatility, supply chain disruptions, and even geopolitical conflict.

Despite the passage of the US CHIPS and Science Act in 2022, designed to boost domestic semiconductor production, the legislation doesn't address the core issue: the U.S.'s reliance on foreign-controlled mineral resources. While the CHIPS Act helps Silicon Valley build semiconductor factories, it doesn't ensure a steady supply of the critical minerals necessary to make those semiconductors.

The CHIPS Act is an important step toward reducing U.S. reliance on foreign semiconductor production. However, Silicon Valley is exposed to significant risks without securing direct access to the minerals essential for semiconductor manufacturing. As things stand, Silicon Valley's access to these crucial materials is controlled by intermediaries—companies and countries that process the minerals after they're mined in Africa.

Despite its global leadership in tech innovation, Silicon Valley remains dependent on supply chains it doesn't directly control, leaving it vulnerable. To safeguard the U.S. technological future, Silicon Valley must establish direct, long-term partnerships with African nations to ensure a more secure and sustainable supply of raw materials.

Time is of the essence. The global competition for Africa's mineral resources is heating up, and California risks falling behind unless it builds stronger, more direct relationships with African countries. These partnerships are essential not only for securing access to critical minerals but also for fostering long-term, stable, and ethical supply chains.

### **Opportunities for Investment in Africa**

Silicon Valley and venture capital (VC) firms have a unique opportunity to invest in Africa in ways that benefit both sides. Here are three key areas where strategic engagement with Africa could pay off:

1. **Local Mineral Processing Plants:** Silicon Valley could reduce its dependence on third-party processors by investing in mineral processing facilities in Africa. At the same time, African countries can benefit from an equitable share of global mineral value chains. This approach would stabilize supply chains, reduce logistical costs, and ensure a direct line to the raw materials needed for semiconductor production, electric vehicles, and clean energy technologies.
2. **Ethical Sourcing and VC Sustainability:** Silicon Valley's consumers increasingly demand that products be sourced responsibly. By partnering directly with African governments and companies, Silicon Valley can ensure that its minerals are sourced ethically. This sourcing aligns with corporate social responsibility (CSR) goals and could enhance the industry's reputation while creating more sustainable supply chains.
3. **Workforce Development and Economic Growth:** Beyond mineral extraction, Silicon Valley can help foster economic growth in Africa by investing in education and workforce development. By providing training and skill development, tech companies can help African nations capture more value from their natural resources, creating a win-win scenario that bolsters local economies and Silicon Valley's supply chains.

The stakes are high. Global demand for semiconductors, electric vehicles, and renewable energy solutions is skyrocketing, and supply chain disruptions are a growing threat. If the U.S. tech industry doesn't secure alternative, reliable sources for these minerals, it risks losing its competitive edge to countries that have already recognized Africa's strategic importance.

## **A Path Forward: Building Stronger Partnerships with Africa**

The future of California's tech sector is intertwined with Africa's mineral wealth. But instead of seeing Africa as merely a supplier of raw materials, Silicon Valley must view it as a strategic partner in innovation and development. By investing in African value-added mineral processing where resource-rich African countries benefit from a greater share of their minerals value chain, Silicon Valley can ensure a steady, ethical, and cost-effective supply of critical minerals while contributing to Africa's long-term prosperity.

This approach would also promote disintermediation, allowing Silicon Valley to bypass intermediaries and establish direct, transparent relationships with African producers. It's a win-win solution: Silicon Valley secures its supply chains, and Africa gains the investments it needs to thrive economically.

Africa is critical to Silicon Valley's future, and the urgency to act is greater than ever. With China and other nations rapidly consolidating their hold over Africa's minerals, the risk of supply chain disruptions looms large. To secure its position as a global leader in technology, Silicon Valley must move quickly to establish strategic, long-term partnerships with African nations.

By investing in local mineral value addition, skills transfer, and sustainable partnerships, California can help African nations fully integrate into global value chains while ensuring a stable and secure supply of critical materials. This strategy is not just beneficial for Africa; it's a crucial step to maintaining California's global leadership in technology and innovation. The future of Silicon Valley depends on it.

### **About the Author**



Kenneth D. Johnson is a global business practitioner with extensive expertise in harnessing Africa's resources to shape the future of technology. As Principal of Devconia, LLC, Ken has spearheaded initiatives that unlock Africa's economic potential through sustainable development and ethical business practices. Ken has held leadership roles at Accenture, PricewaterhouseCoopers, the World Bank, and the African Development Bank, specializing in business development and value chain expansion. Currently, Ken focuses on forging partnerships between Africa and global tech hubs like Silicon Valley, positioning Africa as a pivotal player in the global economy. Ken enjoys collaborating with organizations seeking to deepen their understanding of African markets and strengthen their strategic initiatives.