

# **Book Review: Reinventing the Supply Chain: A 21<sup>st</sup> Century Covenant with America, by Jack Buffington, Georgetown University Press, 2023**

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George Orwell in the 1930s said that the only way to prevent the rising tide of barbarism leading to World War II was for decision-making to devolve to the local level. Jack Buffington suggests the same solution for solving the 21<sup>st</sup> Century problems of environmental disasters and economic collapse. Supply Chain lays out a pathway to a decentralized political economy based on 3-D manufacturing and Blockchain communications technologies complemented by a mighty investment in STEM education. The latter, Buffington emphasizes, is to both eliminate the digital divide and prepare workers for the 21<sup>st</sup> Century economy. Otherwise, Buffington corresponded, "High Tech will continue to lead toward more inequality in our cities."

If he is correct the book will prove a worthy complement to those which have helped define a modern decentralized democratic society including Karl Polyani, *The Great Transformation*, 1971, John Blair, *Economic Concentration*, 1972, Walter Kapp, *The Social Cost of Private Enterprise*, 1973, Ernst Schumaker, *Small is Beautiful*, 1973 and David Morris, *Neighborhood Power*, 1976.

Jack Buffington offers a critique of our outdated supply chain system that drives the economy away from balanced growth and increasingly places national security at risk. Crumbling urban and rural communities with limited remedial employment opportunities typify this model. On the global stage,

China's domestic economic prowess and imperious Belt and Road Initiative into Africa, Asia and the Americas bode poorly for the US economy. Buffington envisions a pathway and strategy to building a national economy based on self-reliant communities of citizens at once consumers and producers. In particular, he sees the crumbling neighborhoods of his hometown Baltimore recovering from its socioeconomic decline through an upgraded broadband infrastructure, an open-source blockchain system to enable transactions, and an advanced manufacturing system to promote production. "Physical supply chains have flown over and around communities like West Baltimore; digital systems can reintroduce a communal and global approach of global virtual logistics....West Baltimore students would have a different future working through nodes within the community supply system."

The Greatest Generation in our history mobilized, fought and won a devastating war between 1941-1945, demonstrating decisively that democracies can protect themselves. But this same generation lost the peace on the home front, allowing the economy to be subject to ever more concentrated monopolies over every facet of our lives from soda pop to healthcare, finance and tele-digital communications. In 1945 the country had the narrowest gap between rich and poor than any time in history but by 1970 the gap widened and today it is wider than any time in our history. Corporate leadership into the global economy infamously resulted in the collapse of our urban centers, among them Detroit, Flint and Baltimore. Long-Tail supply chains epitomized the descent to US deindustrialization.

Jack Buffington, PhD, is a supply chain and sustainability expert at First Key Consulting and Professor of Supply Chain Management at the University of Denver. He is a prolific critique of contemporary political economy and has written *An Easy Out: Corporate America's Addiction to Outsourcing*, 19??, *The Recycling Myth: Disruptive Innovation to Improve the Environment*, 2015, *Peak Plastic: The Rise and Fall of Our Synthetic World*, 2018, and, now, *Reinventing the Supply Chain*.

The World War II D-Day invasion of continental Europe was the zenith of US industrial innovation and efficiency. The plan required two years of planning, needed 17 million tons of military and related materials, including 400,000

liters of blood plasma and 130,000 soldiers staged in Britain to land in 6,900 ships. The US out produced Nazi Germany's war machine by 49,000 tanks to 1,347. The United States emerged from the war with its industrial might intact as the rest of the world's industries lay in ruins. The country lost this exceptional advantage by abandoning basic principles of quality and value in production systems taught by the leading industrial figures of the time Edward Deming and Peter Drucker. US businesses would not listen so these management and production experts turned to Japan. Curiously, Professor Buffington has recently traveled to China.

Instead our captains of industry opted for a demand chain catering consumer demands using psychology and quick- marketing and finance imperatives to transform the economy. Massive advertising and above all low prices marked the roadway. So induced the US saw its economic advantage dissipate. It turns out that what appeared to be the lowest cost wound up being the highest cost to the economy and society. The American Dream of a good job, home ownership, good schools and economic security was forfeit as jobs and production were outsourced to low wage economies in Asia with low or no environmental regulations to protect nature. Frivolous production and engineered wants has yielded 190 million tons of plastic production of single use items. The Life Cycle of products diminished as the oceans filled with discarded plastic and production losses in plastic manufacturing. Consumption became our way of life and defined our economic progress in just one generation following the War.

"Starting with the Faustian bargain after World War II, the US economy morphed into a demand chain", writes Buffington, "concerned primarily with consumer sentiment to grow markets and with less emphasis on the production element of the supply chain system." The country's Sputnik Moment in 1957 was a national wake up call and the country responded by concentrating its resources and production and innovative skills to start space exploration. In 1969 we sent people to the Moon. But this did not make America smart again. Between 2000 and 2010 the country lost 5.8 million jobs to a perfect storm of trade liberalization with China, technological innovations and the effective supply chain strategies used by the likes of Wal-Mart and Amazon.

China initially focused on remedial products – low cost toys and textiles, but has transformed to be the leading producer of solar panels, wind turbines, and smartphones. The US has lost its dominance of crucial sectors of the economy such as aluminum production where we have five producers from 24 producers a decade ago. Buffington sees COVID as another wake up call for the US as the supply chain for essential medicines and medical products failed to meet critical demand. In addition, Buffington reveals, the problem is far broader and deeper than drugs or protective equipment for COVID. China now supplies 95% of the US ibuprofen, 91% of hydrocortisone, 70% of acetaminophen, 40-45% of penicillin, 40% of heparin and 80% of antibiotics.

The Chinese supply chain for industrial production is equally astounding. China is focused on future needs of the mineral supply chain for batteries required for electric vehicles, lithium, nickel, cobalt, graphite and critical rare earth metals such as neodymium and dysprosium, all essential raw materials for a digital economy.

By temperament Buffington is a patient person. He is a long-suffering fan of his hometown Baltimore Orioles. But he is quite impatient with the US somnolence in the face of the transformative nature of modern economies and trade. In particular he is concerned with the challenge from China, an awakened giant, which has succeeded in assembling a “capitalist system with Chinese characters”; something that the Soviet Union failed to accomplish.

The answer for an ample and secure life for the US lies in 3D printing, blockchain assisted marketing and intensive STEM focused education: Science, Technology, Engineering and Math. He insists that something must be done soon and he lays out five pillars of public policy that must be followed in order for the country to meet the challenge of the 21<sup>st</sup> Century economics and protect workers, citizens and nature.

His case for the supply chain system in public policy, marketing, technology, environmentalism and financial markets is built on five pillars of the new supply chain. The needed transformation will be enabled by the super-lubricant, the lingua franca of the blockchain that will level the playing field and could buffer the now dominant global multinational corporations.

+ A digitally based, peer to peer, nodal supply chain made up of community based manufacturing needs, not only an expanded Broadband

infrastructure, but a guaranteed access to all urban and rural populations. At present the American Society of Civil Engineers grades the US system as D+. We must, “expand our definition of infrastructure to include people, processes and technology.” Buffington adds that we are moving in the right direction but far too slowly.

+ Investment in K-12 and STEM education is a top priority in attaining competitive status. No less than 79% of future jobs will require STEM learning. At present we rank 13<sup>th</sup> out of 35 nations in math and 19<sup>th</sup> in science. We need the American voter to demand that policy makers accelerate STEM learning.

+ Further research and development of blockchain technology and peer to peer operating systems will create the information highways for nodal transactions at the micro and nano levels. These advances will establish a new Silk Road far more meaningful than those of Amazon, Wal-Mart and other corporate giants. They will be far more essential for the country than the Federal Highway program of the 1950s. Blockchain developments can even the playing field for small producers and communities as well as the Chinese ‘capitalists’ who are investing heavily in this sector.

+ Nodal entrepreneurs will benefit from these new policies and investments. Manufacturing is the anchor of the supply chain system. Research and development in advanced manufacturing and 3D printing is required. A coherent strategy identical to the US space program started in the late 1950s is essential. The US needs a public-private partnership with its future physically networked economy. Buffington's preferred approach would be for investments from both the public and private sector. Like Edmund Burke, the founder of modern political thought, Buffington has an eye for linking America's past with its future.

+ Market incentives are critical to the future that Buffington envisions and is working toward. The US provides an estimated \$20 billion annually to fossil fuel industries. Between 1995 and 2017, \$370 billion in subsidies was provided to the US farming industry. These payments must be transformed to create “a nodal peer to peer community based supply chain (that) has the potential for more significant economic growth and local self-reliance than the farming and fossil fuel industries.” This would also provide a foundation for “a value chain approach for a 21<sup>st</sup>-century economy. Imagine the

investment and potential and production benefit to the US GDP of thousands of peer to peer, nodal supply chains across the nation --- self-organizing and generating wage/revenue, jobs, tax base for citizen nodes and fewer environmental and social externalities.”

Adam Smith would welcome this supply chain revival, asserts Buffington. The founder of the theory of Capitalism would condemn our current form of concentrated capitalism just as he did the stagnant Mercantilist economic system of the late 1700s. He envisioned a system in which the ‘invisible hand’ of self-interest would result in a highly competitive economy of independent producers. A vision Buffington points out that is not dissimilar that of Karl Marx; whose vision of society of production and consumer cooperatives, credit unions and their federations to emerge after “the withering away” of the capitalist controlled state.

Would such a future be readily available to us! Buffington is a stolid optimist, which is good. But one has to wonder whether Americans will reach a consensus point on how to move the economy forward in the ways he describes. Or, are we condemned to a future of unbalanced economic growth, inequality as the dominant monopolies continue their assault on people and nature?

Recent developments underscore these concerns. Even though the Biden Administration has presented a once-in-a-generation funding for common sense management of municipal waste, it is a battle to assure that investments are directed to a new infrastructure. And not gobbled up by old paradigm companies and institutions. The billions scheduled for the solid waste management sector must not underwrite another generation of garbage incinerators and must flow to appropriately scaled recycling, composting and reuse networks. Peter Anderson, RecycleWorlds, an expert on landfill gas technology warns that the Inflation Reduction Act has been twisted to create a financial windfall for landfill owners and would economically cripple composting of organic materials. In energy, housing, healthcare, communication sectors the investment must be directed to accomplish a sensible scale of production and consumption. The actual economy of scale of efficient production must replace the most profitable scale of production. Can we expect the critical investments in 3D manufacturing and blockchain development when the country is struggling just to build sufficient transmission lines for our current energy grids?

Clearly there needs to be a sea change in the county's approach to investing for the 21<sup>st</sup> Century. The public must be mobilized and focused on change if Buffington's insights and positive suggestions are to be realized. If so the impact on our economy and culture will be revolutionary, a paradigm shift in thinking and doing.

Buffington senses this and is calling for proof-of-concept demonstrations. He is working toward this end in Baltimore and other locales. In recent correspondence Buffington states, "The expectation from the proof of concept is that these community-based supply chain systems will provide a favorable alternative to conventional models of economic development for inner cities and rural towns." Buffington will work with local agencies to identify public and private investment resources both build the technology and train workers. He intends the demonstrations to focus on healthcare, precision manufacturing and a supply chain model with a partnership structure that includes entrepreneurs, existing small businesses and municipal leaders. Educational leaders, especially, are critical to the partnership team as training in structured problem solving and digital knowledge will be essential for developing future entrepreneurs within the community. Partnerships with existing makerspaces and blockchain forums will also be part of the public-private partnership he feels are critical for success. Buffington neither seeks nor expects any financial benefits from this work with communities.

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