U.S. Investment Super-cycles

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Investment super-cycles are periods of sustained investment and economic growth driven by transformative innovation and technology that generate broad gains in productivity.

Railroads, 1870-1900
Main driver: Transportation infrastructure

Electrification, 1900 – 1929
Main driver: General-purpose technology

Defense/Aerospace, 1947 – 1991
Main driver: Defense procurement and R&D

Telecom/IT, 1995-2004
Main driver: Digital infrastructure and software

Shale energy, 2010-2019
Main driver: Energy production

Gen-AI, 2022-present
Main driver: AI, data center, semiconductor, power

What can we learn from past U.S. investment super-cycles?

Gen-AI is emerging as a major investment super-cycle, driving large-scale capital spending across computing infrastructure, semiconductors, data centers, and energy, with the potential to reshape growth, productivity, and labor markets.

Historical super-cycles show that investment alone is not sufficient—economic gains depend on whether new technologies diffuse broadly and generate sustained productivity improvements across industries.

Generative-Artificial Intelligence (Gen-AI) has emerged as one of the most significant investment themes of the current decade, driving substantial capital spending on computing infrastructure, data centers, semiconductors, and power generation. While the technology remains in the early stages of adoption, it has already demonstrated the potential to become a long-lasting investment super-cycle with far-reaching implications for economic growth, productivity, labor markets, and society more broadly. The potential scale of investment and the breadth of industries affected have drawn comparisons to transformative technological revolutions of the past. To assess how the Gen-AI cycle may unfold, it is useful to examine the past super-cycles that reshaped the U.S. economy. While each investment cycle was unique, they offer valuable insights into the conditions under which large investment waves translate into economic growth, productivity gains, and inflation.

Investment Super-cycles' impact on the U.S. economy

2	Strong positive
1	Moderate positive
0	Insignificant
-1	Moderate negative

Disinflation	>0
Inflation	<0

		Cycle type		Economic impact		
		Capital deepening -or- Gen. purpose technology	Supply side technology -or- Demand side investment	GDP	Labor Productivity	Inflation
Railroads	Connected regional markets into national economy Reduced transportation and distribution costs	Capital deepening	Supply side technology	2	1	2
Electrification	Electrification-enabled factory redesign, mass production, and consumer durables Complemented by automobile and road expansion	General purpose technology	Supply side technology	2	2	2
Defense/ Aerospace	Defense procurement funded aerospace, semiconductors, computing and communications technologies	General purpose technology	Demand side investment	1	1	-1
Telecom/IT	Connected firms, consumers, and global supply chains through computers, software, and networks	General purpose technology	Supply side technology	2	2	2
Shale energy	Increased domestic energy supply, lowered energy costs through technological innovation in drilling and fracking	Capital deepening	Supply side technology	1	0	1
Gen-AI*	Combines AI, semiconductors, cloud infrastructure, power generation, and grid investment Knowledge-intensive technology cycle	General purpose technology	Supply side technology	2	2	Short term -1 Long term 2

** Gen-AI cycle is still unfolding; assessment assumes that the capital investment will be complemented by organization changes, leading to productivity gains that spread throughout the economy*

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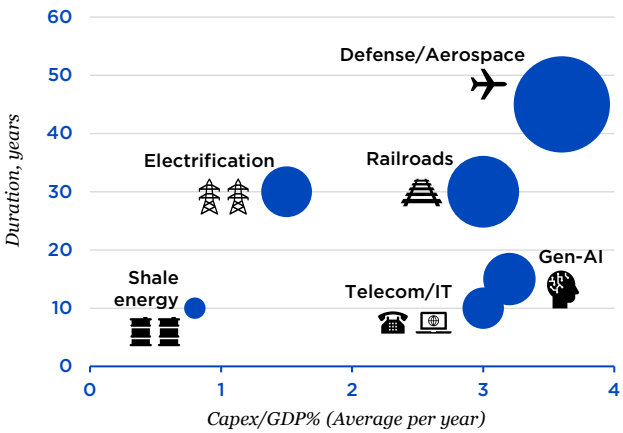
The central lesson from historical investment super-cycles is that long-term economic gains are driven not by investment itself, but by the productivity improvements that investment enables. Transformative technologies such as electricity, aerospace, and telecommunications became powerful growth engines because they evolved into general-purpose technologies that diffused across the economy. Their impact depended on complementary investments in infrastructure, energy, skills, institutions, and regulation, as well as the ability of firms to reorganize production and business processes around the new technologies. Historically, the most durable expansions occurred when multiple investment waves reinforced one another and translated into sustained gains in productivity and living standards. The ultimate impact of Gen-AI will depend less on the amount of data center and chip investment, and more on whether Gen-AI enables economy-wide organizational transformation and productivity gains.

Capex during U.S. investment super-cycles

Size represents total capex



Gen-AI has the potential to evolve into a general purpose technology super-cycle.

Key lessons from historical U.S. investment super-cycles

Investment intensity alone does not determine success.

Aerospace/Defense spending was larger than telecom investment, yet telecom generated larger productivity gains.

General-purpose technologies create the biggest economic gains.

Major general-purpose technology required substantial complementary investment and organizational change across businesses before economy-wide productivity gains became visible.

High productivity super-cycles were disinflationary.

These were supply-side technology cycles that increased productive capacity. Demand-side investment cycles such as aerospace/defense tend to increase inflation because they boost demand without directly increasing supply.

Sources: Haver, BEA Fixed Assets Accounts Table, National Defense Budget Estimates (Green Book FY2025), Nationwide Economics

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CONTRIBUTORS

Vivian Chen
AVP, Senior Economist

Kathy Bostjancic
SVP & Chief Economist

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