Desjardins
Global Asset Management

Innovation cycles and financial markets

What history teaches us about technological revolutions

This article aims to provide a better understanding of economic transformations, investor behaviour, and financial market dynamics during periods of technological revolution. As history tends to repeat itself, useful lessons can be drawn from previous cycles to perhaps even anticipate certain stages of the current innovation cycle.

Innovation and creative destruction

The history of industrial and technological revolutions is fascinating, rich, and extensively documented. Each of these advances, from the sextant to GPS, the steam locomotive to the automobile, the hot air balloon to aviation, the first machines to automation, and printing to the digital revolution, has profoundly transformed the world and propelled productivity and prosperity.

But such upheavals in work organization and social habits have rarely been met without apprehension and concerns. Trades, business practices and even entire industries have disappeared, swept away by the *creative destruction* that comes with any wave of profound innovation.

In this context, today's fears of the artificial intelligence (AI) revolution are neither new nor exceptional.

Investor enthusiasm

At the beginning of each technological innovation cycle, the shares of pioneering companies tend to outperform spectacularly. Amid widespread enthusiasm, investors extrapolate recent returns, driving valuations far beyond economic fundamentals. This dynamic is accompanied by a narrative based on exceptional growth prospects and, recurrently, on the idea of a **paradigm shift**. Previous valuation benchmarks are then considered obsolete.

The enthusiasm generated by certain companies sometimes resembles a cult. Their leaders become iconic figures, adored by investors and the general public alike, embodying the spirit of progress. Henry Ford was celebrated for his industrial innovations, but also for his visionary management style and his emphasis on human capital. His public image helped make him an icon of industrial capitalism.

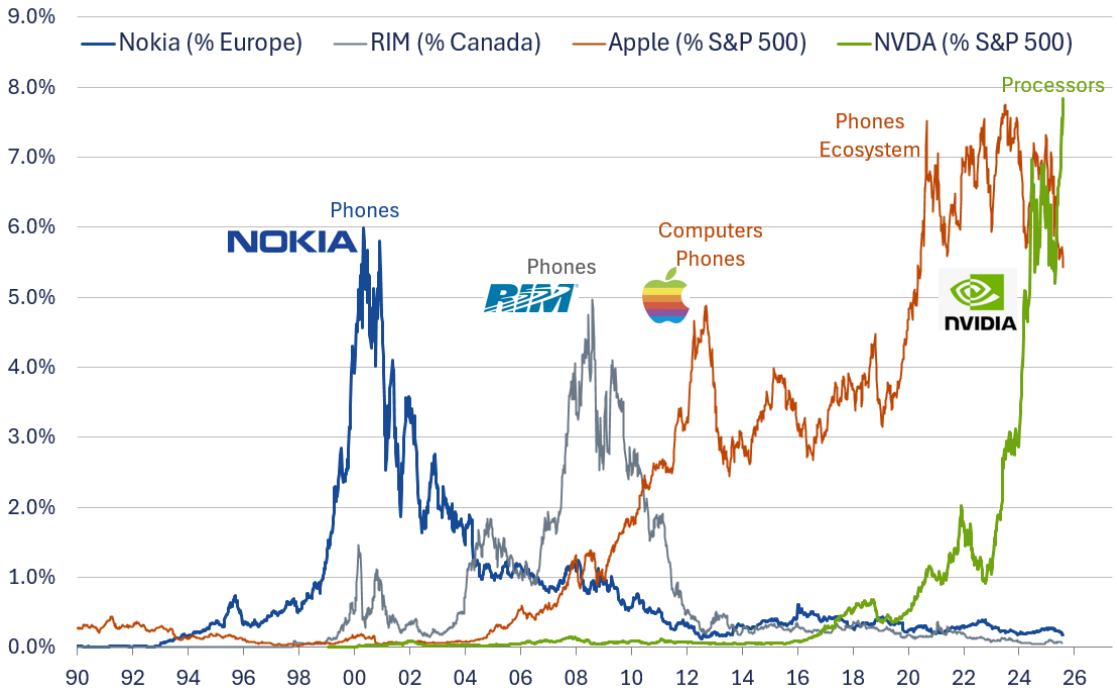
Harold Geneen (ITT) in the 1960s and Bill Gates (Microsoft) and Jack Welch (GE) in the 1990s also embodied, each in their own way, charismatic leadership associated with periods of technological

and financial expansion. They have often been perceived as visionaries capable of redefining the rules of the game, thus reinforcing narratives of rupture and paradigm shift.

The inevitable arrival of competition

History teaches us that the main risk facing dominant companies during periods of technological revolution lies less in disappointing future growth—as skeptics or "non-believers" argue—than in the emergence of new competitors capable of offering better-performing or lower-cost products. Nokia and Research in Motion (RIM) are prime examples. In 2007, Nokia held 50% of the global mobile phone market share. That was before the arrival of RIM's BlackBerry and Apple's iPhone. Similarly, since the arrival of competition, Tesla's market share has been in sharp decline.

Competition is ruthless
Weighting of securities as a percentage of their respective markets



Sources: DGAM, LSEG, August 2025

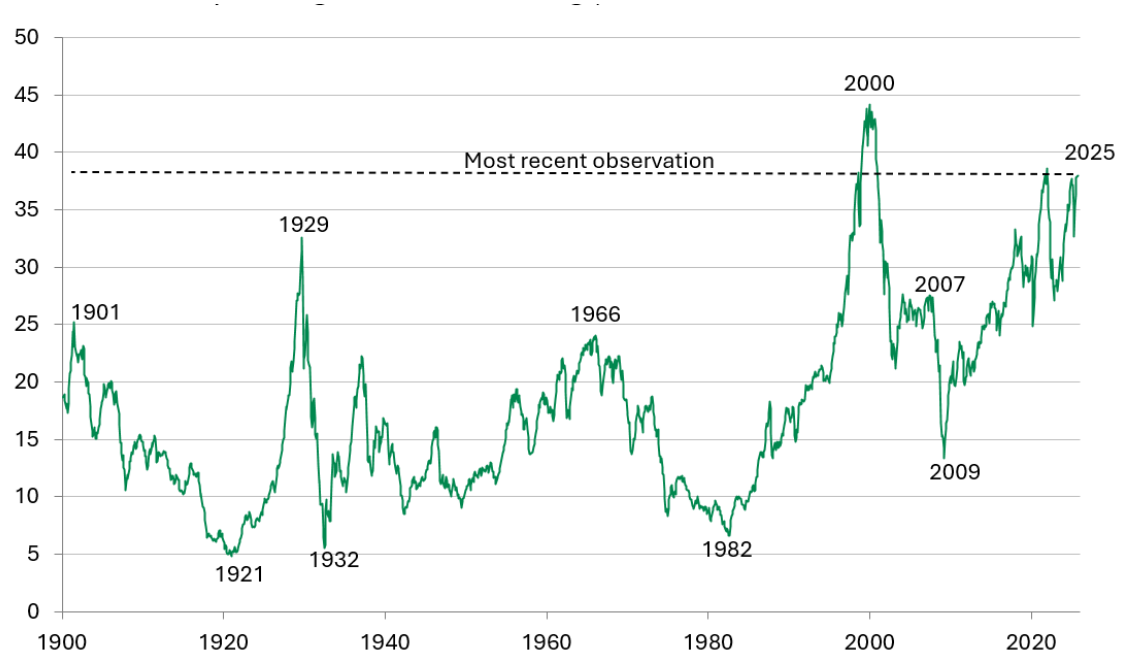
The spread of new technologies is driving strong demand and attracting a growing number of new players. This is leading to increased competition, overinvestment, and overcapacity. Ultimately, there is downward pressure on the prices of innovative technologies, and the initial benefits become commoditized.

Ultimately, the economic benefits of the technological revolution are captured by companies that have effectively integrated it into their operations. Indeed, **history shows that productivity gains tend to shift toward end users, who benefit from more efficient technologies at decreasing costs**.

The current innovation cycle: Winners take all, for now

The enthusiasm around AI is prompting investors to take almost unprecedented risks. The valuations of some companies are skyrocketing, driven by the hope that they will dominate the future. This kind of behaviour is not new: we saw it with the railways in the nineteenth century and the digitalization of the economy in the 1990s. Each time, recent trends are extrapolated, and the markets get carried away, that is until they sell off.

The US stock market has rarely been so expensive
Average S&P 500 P/E ratios in real terms, adjusted for cycles (10 years)



Sources: DGAM, Robert J. Schiller, August 2025

How long will this period last, when a few winners seem to be taking it all? It's hard to say. But history shows that competition inevitably intensifies. Margins tighten, market share fragments and yesterday's leaders may quickly lose their lead. Big tech companies are unlikely to let Nvidia maintain a monopoly. The arrival of DeepSeek, which challenged the need for chatbots to rely on Nvidia's high-end products, gave us an early taste in the beginning of 2025. In a single day, Nvidia shed nearly $600 billion of its market cap — the biggest drop ever for a listed company.

The risks of extrapolation

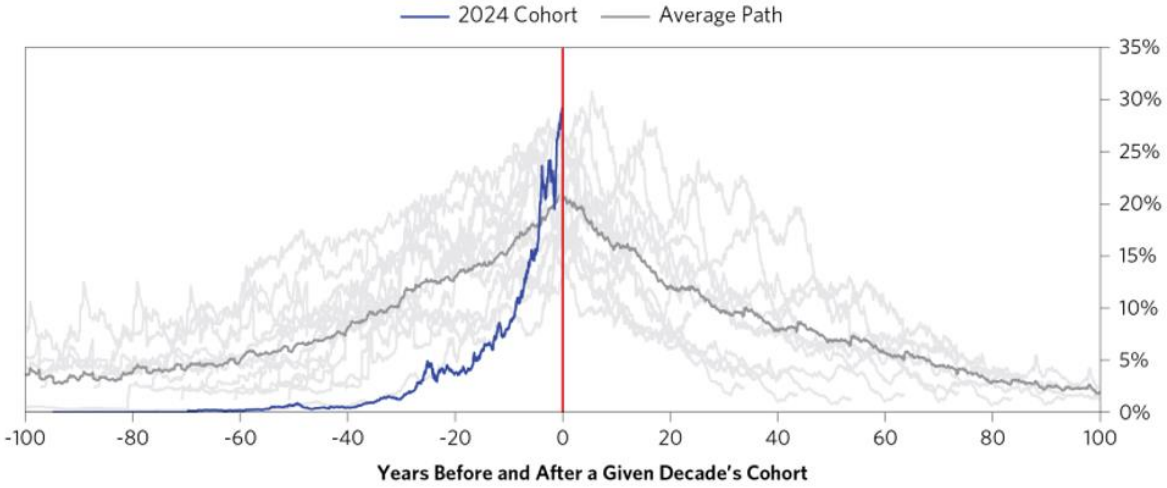
We are in the early stages of the AI era. There are still many unknowns and variables to consider. At this stage, it is extremely difficult to distinguish the real long-term benefits for different industries from mere speculation. As technology continues to advance at a rapid pace, this distinction will need to be continually reevaluated.

Current technical challenges are a good example. Today, the energy required to power energy-intensive processors and the water consumption needed to cool them are major issues. In 2000, the

challenges were slow bandwidth, the very high cost of data storage, and low computing power. However, these problems were quickly overcome thanks to technological advances.

Extrapolating today's technologies into the future is a risky, if not naïve, approach. We've seen that this is also the case for the competitive environment. Each innovation cycle ends up attracting a multitude of competitors, leading to overcapacity — as was the case with railways or fibre-optic networks. As a matter of fact, China is already said to be experiencing overcapacity in its data centres.[1]

The leaders of the last decade rarely remain the dominant companies
Share of total market capitalization of the top 10 US companies, by decade



Source: Bridgewater, June 2024

A competing product doesn't have to be intrinsically better to capture market share. For instance, it could be 20% less efficient but 40% cheaper and 50% less energy-consuming, or it could be better designed to meet a specific need, such as application-specific integrated circuits (ASIC).

With this hindsight, some recent announcements may be cause for skepticism. The build-out of nuclear power plants to provide energy for data centres raises questions. A power plant takes at least 10 years to build and costs 10 times more than solar or wind. But no one can predict the energy consumption of processors in 2035. Some even go so far as to imagine data centres in space...

The fear of being replaced by a machine

Apocalyptic scenarios abound about the future dominance of AI, especially once artificial general intelligence (AGI) arrives. Whether rightly or wrongly, these themes are popular because our brains naturally pay more attention to negative stimuli due to an evolutionary bias.

The fear of unemployment and "being replaced by a machine" has been a recurring theme in every technological revolution for the past 200 years. But robots and AI can only produce goods and services if there is consumer demand for them. There will likely be creative destruction,

[1] MIT Technology Review, March 26, 2025 and Techradar.com, April 6, 2025.

productivity gains, and greater prosperity in the long run. But the transition won't be a purely economic phenomenon for those personally affected by it.

Some occupations will be spared, however. Pink-collar jobs, namely those with a strong relational, empathetic or care component, will be especially resilient to this upheaval. Such jobs will be needed as the aging of the world's population accelerates over the next 25 years. Skilled trades that require hands-on work and constant adaptation to a varied environment, such as plumbers and electricians, will also be resilient.

Conclusion and implications

The history of innovation cycles calls for a cautious attitude toward today's giants. Their dominance could be challenged not by pessimistic scenarios but, in the opposite case, by increased competition. Rapid adoption of new technologies across all sectors is creating opportunities elsewhere, especially among end users — a potential that is still poorly reflected in the valuations of mid-cap stocks in particular.

Since January 2025, announcements of investments in AI and data infrastructure have crossed the US$500-billion threshold, driven by a strong commitment by the Trump administration. Although the scale of the projects is unprecedented, their implementation and profitability remain uncertain. Several initiatives seem to be motivated more by geostrategic considerations than by economic logic, particularly the desire of some nations for greater data sovereignty. This dynamic has revived the risk of **technological overcapacity**, already seen during previous investment cycles**.**

Moreover, Washington's isolationist attitude serves as a catalyst for foreign competitors. China's Huawei and Cambricon, for example, are stepping up their efforts to build an autonomous AI infrastructure, illustrating once again that constraint drives innovation — confirming the adage that necessity is the mother of invention.

Jean-Pierre Couture

Economist and Senior Portfolio Manager, Global Top-Down Strategies
Desjardins Global Asset Management

Sources:

The Dynamics of Competition and of the Diffusion of Innovations, James M. Utterback, Calie Pistorius, and Erdem Yilmaz, MIT Sloan School of Management, August 2018.

The AI Bubble: Jeremy Grantham on History, Markets, and Economic Risks, Johnny Hopkins, March 2, 2025.

Chinese AI startup DeepSeek is threatening Nvidia's AI dominance, Beatrice Nolan, Fortune, January 27, 2025

The Life Cycle of Market Champions, Bob Prince, Khia Kurtenbach, Thomas Maisonneuve, Bridgewater, June 2024

People are worried that AI will take everyone's jobs. We've been here before, David Dotman, MIT Technology Review, January 2024.

DeepSeek sell-off shows the risks of a concentrated US stock market, Toby Nangle, Financial Times, January 2025.

Henry Ford Leadership Style (Guide), TME.net, March 2024

5 Entrepreneurship Lessons by Henry Ford, Forbes, August 2017.

Corporate History: The Fall of Nokia, Antoine Fonfreyde, beaboss.fr, April 2023