What Drives Innovation?

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Modern welfare states need economic growth to keep their show on the road. The ever-rising costs of pensions, of health care and of maintaining crumbling infrastructure all necessitate rising tax revenues. And rising tax revenues typically depend on economic growth. In turn, economic growth is generated either by population expansion or by productivity growth.

This is a problem for most Western welfare states. Today, population growth (ex-immigration) in almost all developed economies is either close to zero or negative. This means that if the world's major economies want to grow, they will be condemned to innovate. Innovation is a fascinating topic. The ability to innovate is probably the single most important economic variable. However, innovation is a topic that rarely comes up in Gavekal's discussions with clients, in our seminars, or in the conversations we host on our podcast (clients who have yet to subscribe to our podcasts should ask their sales rep for the registration link). And when the topic of innovation does come up, it is usually in the shape of a discussion about which countries "can do innovation" and which "cannot do innovation." Little time is spent discussing the root causes of innovation.

1) Education

Some drivers of innovation can be taken for granted. It is hard to achieve much innovation without a strong education system and world-class research universities with serious programs in science, technology, engineering and mathematics. Degrees in grievance studies only take you so far. Still, it seems that world-class universities are a necessary, but not sufficient, condition. Britain has world-class universities, so does France. Yet the levels of innovation coming out of these two countries have tailed off in recent decades. Gone are the days when the Concorde plane, TGV trains or French nuclear power plants were at the leading edge of innovation globally. This is part of the reason why the United States today accounts for 70% of global equity market capitalization with only 18% of global GDP and 4% of the global population. Today, the US is nothing if not the world's "innovation leader." So, what sets the US apart?

2) The rule of law

The first thing that clients, especially US clients, tend to point to is the rule of law (don't worry, I have no intention of addressing growing allegations of lawfare in US politics). But the rule of law as an explanation for innovation is unsatisfying. Lots of countries have judicial systems that are largely free of political interference; many to a greater degree than the US. In the 2023 WJP Rule of Law Index, the four Scandinavian countries rank first, followed by Germany, Luxembourg, the Netherlands and New Zealand. This means these countries are all nice, safe, civilized places to live, but it doesn't necessarily make them hotbeds of innovation. The US finished 26th on the list, sandwiched between those two powerhouses of innovation Uruguay and Slovenia. Incidentally, that placed the US behind Japan in 14th place, Singapore in 17th, South Korea in 19th and even Hong Kong in 22nd place (remember Hong Kong? It's the city-state where even former judges on the Court of Final Appeal are warning that "the rule of law is profoundly compromised"). The idea that innovation and the independence of a justice system are inextricably linked is also belied by China. I realize that to many Western investors China is incapable of innovation. To them, all China can do is steal other peoples' technologies. This

cliché might have been true a decade ago. But today, with China leapfrogging Western economies in industry after industry—solar panels, electric vehicles, batteries, high-speed trains, smartphones, nuclear power, carbon capture—perhaps we should now retire it. Any open-minded visitor will gladly testify that in cars, trains, fintech solutions, and the overall digitalization of daily life including government services, China is now miles ahead of most major developed economies. Looking at cars like the new BYD Qin with its 2,000 km range on a full charge and tank of gas, you have to conclude that China is capable of innovation, even if entrepreneurs and inventors do not benefit from the same rule of law and property rights that their counterparts in the West enjoy. So what drives innovation? And can we learn anything from how China has so suddenly leapfrogged Western industry?

3) A strong military-industrial complex

This is a longstanding Gavekal theme. Over the decades, around the world there appears to be a high correlation between military spending and innovation. The internet was originally developed by the US Department of Defense (along with Al Gore, of course). And in the days when France and Britain had proper military budgets, France invented the Minitel, while Alcatel and Marconi were telecom giants. Then, as France and Britain slashed their military budgets, their lead in technology bled away. Today, Minitel, Marconi and Alcatel are vague memories of a bygone age. Looking at military spending around the world today, countries with strong and growing military spending on domestic weapons manufacturing include the US (obviously), Russia, China, Israel (a hive of innovation), South Korea (also a strong innovator) and Taiwan (the same). So on this criterion, it seems likely that these countries will be innovation leaders for many years to come.

4) The acceptance of failure

In 2011, when asked on Bloomberg TV about the threat from BYD, Elon Musk burst out laughing. At the time, the idea that a Chinese car manufacturer could pose a competitive threat to a Western auto maker sounded like a joke. Today, 13 years later, no Western carmaker is laughing. In recent years, China’s automobile industry has come out of nowhere suddenly to become the world’s largest auto exporter.

It's not just cars. China has also become the world's leading producer of batteries, solar panels, earth-moving equipment and tractors. So why does the US do so well in technology and so badly in autos, and increasingly aerospace? Perhaps because in the tech world, companies are allowed to fail. In contrast, in most other sectors, the US government will do everything it can to prevent companies with large workforces from going under.

And how has China suddenly done so well? The general perception in the West is that China's progress was achieved through a combination of an artificially low cost of capital, preferential loans and massive subsidies. In this narrative, it was top-down "industrial policy" along with a hefty dose of industrial espionage and forced technology transfers that enabled China to move so rapidly up the industrial value chain.

As Jeremy Irons' bank CEO character in the movie Margin Call says: "There are three ways to make a living in this business: be first, be smarter, or cheat." Clearly China wasn't the first economy to industrialize. And it is understandable that Western policymakers don't want to acknowledge the possibility that maybe China is smarter. That leaves cheating.

As Robert Wu, who writes a must-read Substack on China, put it recently:

"One of the biggest cognitive errors that outsiders make when looking at China is to project their own fear of a totalitarian system onto China. Because of this error, they tend to believe everything in China is because the Chinese government does this, or the Communist Party does that, and the discussions only stay at that level.

“But still, it is a cognitive error, and by committing this error, one thing they fail to realize is that they deprive the agency of the people in China. Where do Chinese people come in for all of these discussions? No one bothers to ask. It seems some autocrats give out some subsidies here, appropriating some technology there, and a fantastic, globally competitive industry just miraculously comes into being. So, ironically, in all of these discussions made by commentators from supposedly democratic systems, it’s the people that they always fail to mention.”

The Western media today are full of stories bemoaning the economic “shortsightedness” of companies such as Tesla or Apple which, while focusing on their bottom lines, are selling to the Chinese communists the rope with which they shall eventually be hanged. As China has come so rapidly to dominate the EV market, Tesla has come in for especially vitriolic criticism for having seized the opportunity to open a massive factory in Shanghai.

Funnily enough, five years ago the fear in China was that Tesla would crush the nascent Chinese EV industry. Who would be able to compete with the US behemoth? Tesla had the advantages of brand recognition, the support of the Shanghai government, and a cheap cost of capital back in the US, given that at the time interest rates in the US were less than half the rates in China.

To some extent, these fears were justified. In the years following Tesla’s establishment, a number of Chinese EV companies did go bankrupt, including some pretty big names such as Hengchi, Byton, Baoneng, and HiPhi. But others have survived the “Hunger Games” competition by sharpening their processes and improving their products.

The story of Tesla in China bears similarities to Apple’s release of the Chinese-made iPhone in the Chinese market. Initially, Apple conquered all. Some Chinese competitors went under. But the ones that survived—notably Huawei and Xiaomi—did so by raising their games to the point where they are now producing more advanced phones than Apple, and at cheaper prices. Both Tesla and Apple pressed local supply chains to get better and faster. And other producers benefited from these improvements. This should all sound familiar. New players enter the market and help to “cull the herd,” ensuring the demise of the weakest. Meanwhile, the strongest respond to the competitive pressure, survive and prosper. This is precisely how capitalism is meant to work.

Creative destruction at work: the cheapest EV in each market

China
BYD Seagull
US$9,700

Germany
Dacia Spring
US$24,950

USA
Nissan Leaf
US$29,235

Image credit: BYD, Nissan, Dacia

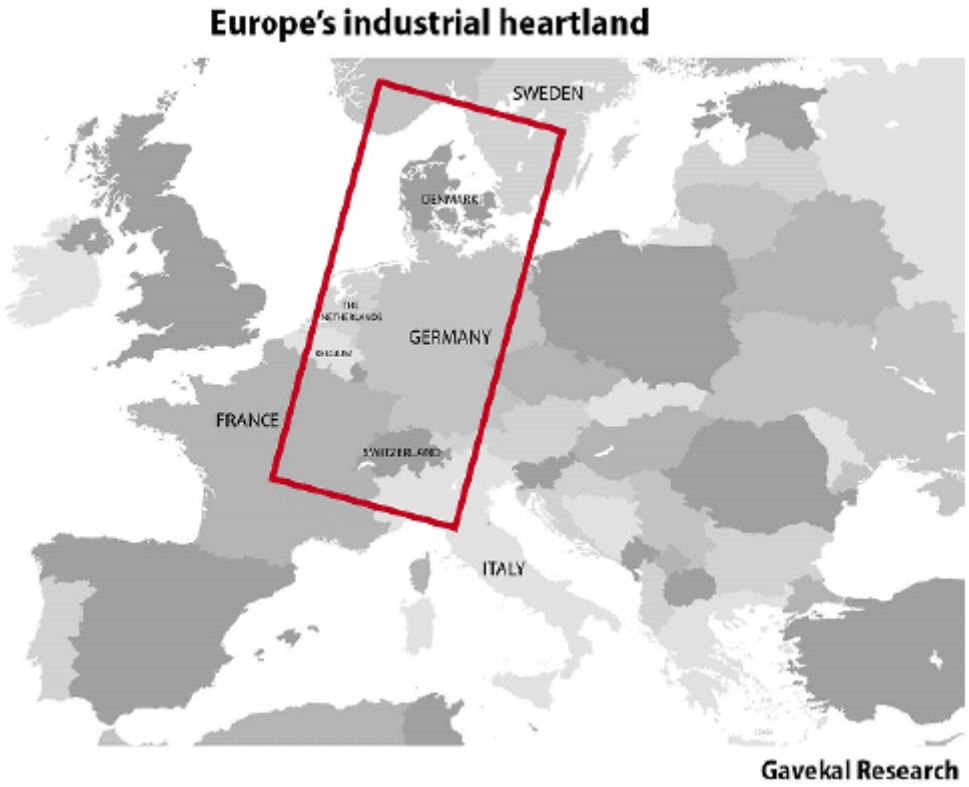
As Joseph Schumpeter pointed out in his work on creative destruction, there is a dark side to capitalism. Or as Charles wrote back in 2011, capitalism without bankruptcy is like Christianity without hell. It just doesn't work as well. With this in mind, when was the last time a major US auto company was allowed to go under? (Fisker doesn't count!) Unless US automakers are allowed to go to the wall, why should we expect them to produce world-class cars? As Charlie Munger said, "show me the incentive and I will tell you the outcome." **If mediocrity is left unpunished, entire ecosystems become mediocre. The readiness to accept failure is an important part of innovation**.

5) The importance of ecosystems
In a recent conversation, Gavekal's good friend Oliver Bolitho remarked:

"One justifiable observation that has been made about Silicon Valley is that it is not just a place but more of a microclimate. What is special is that for years, the best minds in the IT world have gone there to build new businesses. They have been successful there because of the network effects of capital recycling, mentoring, specialist advisor communities, the provision of capital dedicated to new launches (angel investors, venture capital funds) along with experienced advisors (audit, legal). Despite the best efforts of the Hong Kong government with Cyberport, of Groupe Bull and Alcatel in France, of UK industrial policy, of Bangalore or Shenzhen, no one has cracked the IT advantage that Silicon Valley started building with Bell Labs and Hewlett-Packard two generations ago".

Similarly, almost all European industry in concentrated in a relatively small area stretching from

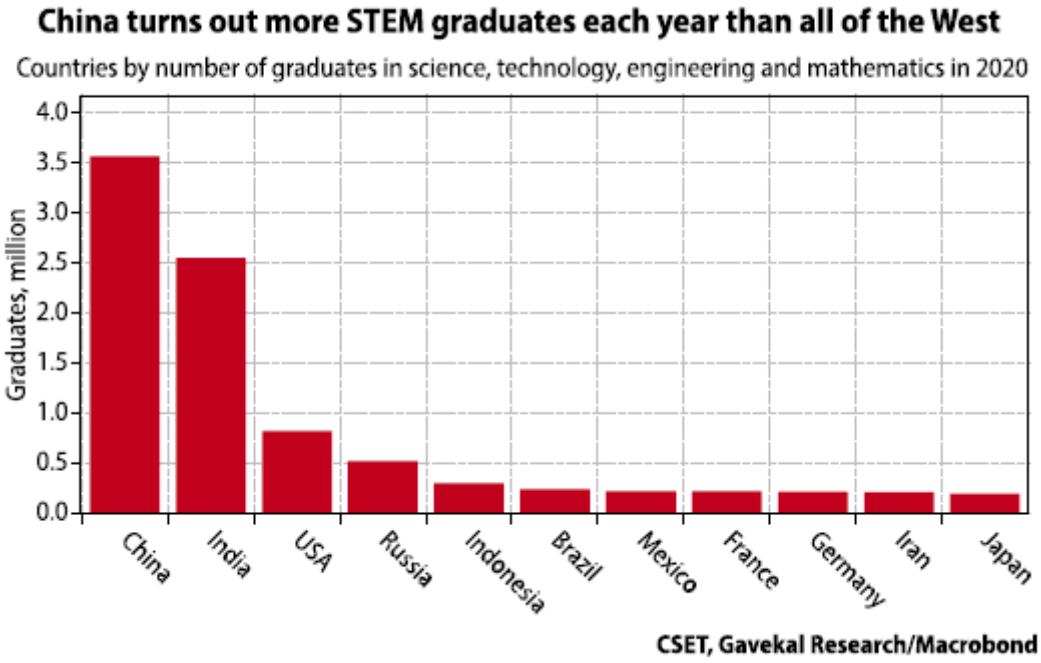
Northern Italy to Southern Sweden, Eastern France to central Germany. In this rectangle, you have banks with a long history of lending for industrial development, companies which have worked across borders for generations, and managers who speak multiple languages.



In short, Europe has a genuine ecosystem here—an ecosystem which over time has fostered progress and innovation. But can this industrial ecosystem survive? Perhaps it will, protected by higher tariffs and more government subsidies. But this would entail a continued drift in Europe towards a mercantilist future in which consumers subsidize producers. Alas, this sort of ecosystem usually ends up killing innovation.

Today, the US dominates many ecosystems. The ones capturing all the hype at the moment are the artificial intelligence and semiconductor design spaces. But the world's entertainment ecosystem—Hollywood, music, sports—is also centered in the US, along with much of the world's health care and big pharma industries. In addition, the US dominates the advanced weaponry and aerospace ecosystems (Boeing's recent troubles notwithstanding) and many others; the list goes on. The point here is that the US controls enough ecosystems to ensure it will remain a center of innovation.

But the US will not have a monopoly on innovation. Possibly the most important single development of recent years is how China has established control over entire ecosystems of its own, including EVs, hybrid cars, highspeed rail, nuclear power and carbon capture. China has also moved up the value chain in entertainment (TikTok), e-commerce in emerging markets (Alibaba), and retail in developed economies (Temu, Shein). In short, China is now a source of innovation in its own right. This is a profound change from 10 years ago, and one which will likely become more important as China continues to graduate more science, technology, engineering and math students than the whole of the Western world combined.



The question investors should ponder today is whether China has started to create the sort of hubs of excellence, innovation and local supply chain concentration in new-age industries that will enable the emergence of future disruptors. Following the successes of BYD and Xiaomi, and the failures of Byton or HiPhi, have financiers in China become wiser about what works, and what doesn't? If so, the pace of innovation in China could very well continue to accelerate from here. Not by a little. By a lot.

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