

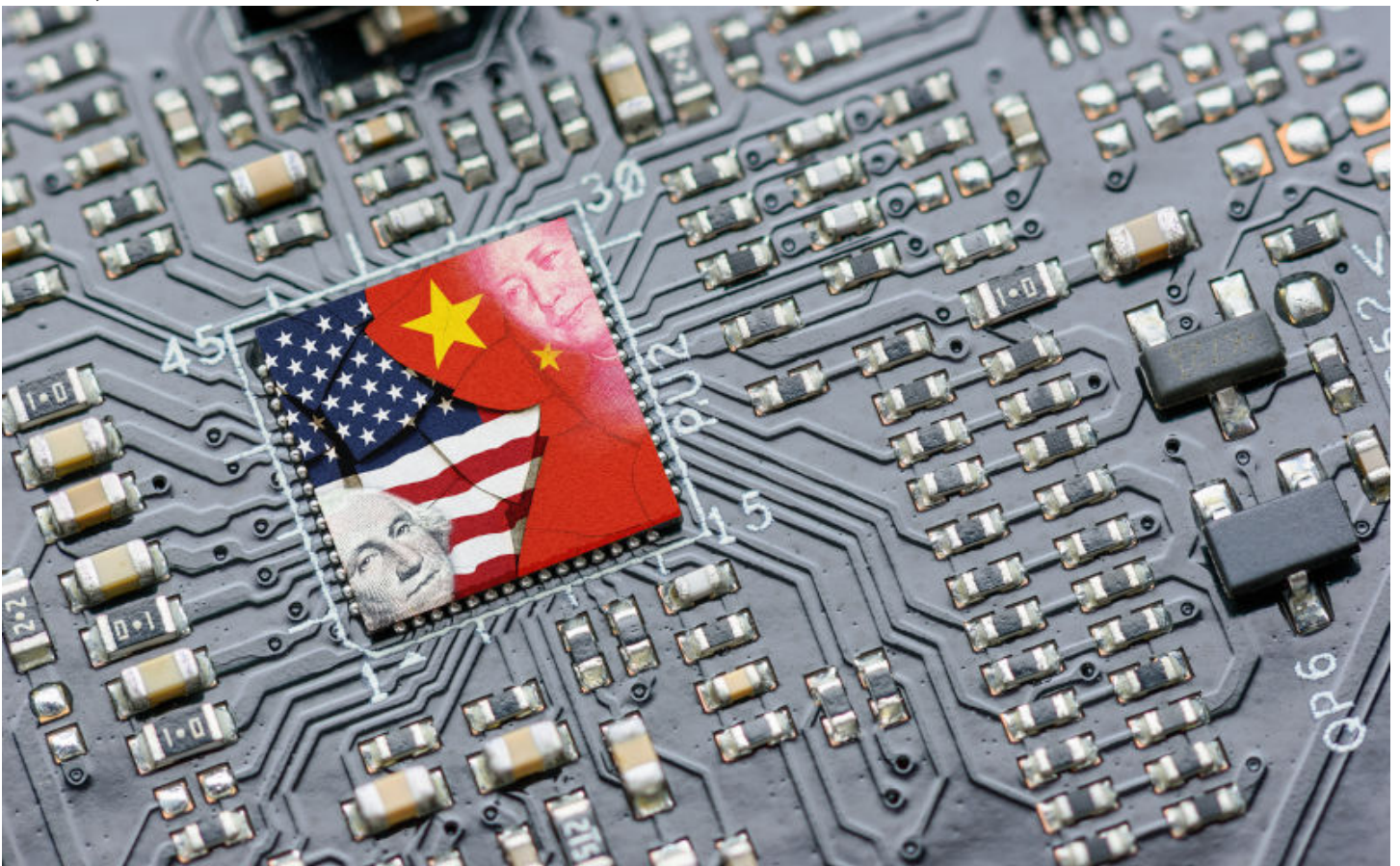
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Why China has passed the United States in science and technology

By John F. Copper
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In recent weeks there have been a multitude of news items and reports emanating from various quarters indicting China has passed the United States in science and technology and this is likely an irreversible trend.

According to the National Science Foundation China has overtaken the U.S. in scientific patents and published reports. The Australian Strategic Policy Institute recently declared that China is ahead of America in 37 of 44 areas of technology. *Fortune magazine* and the *Wall Street Journal* echo these figures, the former reporting China's quantity and quality of academic research is better than the U.S. In scientific papers China is said ahead by a large margin.

According to research.com and the Rhodium Group the impact on the America's global competitiveness could amount to a trillion dollars in the next few years.

Furthermore, the areas where China leads are critical ones: artificial intelligence (six times more patents), robotics, hypersonic missiles, 5G, nano manufacturing, and many others.

The big questions are why has this happened and what can be done about America's fall from grace?

The most frequently cited causes of China getting ahead of the United States are money, ideology and brains.

In 1980, owing to Deng Xiaoping's new policies of free market, less party and government influence in the economy, and essentially capitalist planning, China's economic growth accelerated almost exponentially. This continued vis-à-vis the U.S. after 2008. America, in fact, witnessed the slowest recover from a recession in many years during the Obama presidency.

Under the Biden presidency the gap between China and America's gross national product growth widened. According to the *Economist's The World Ahead—2023* China's GNP growth this year will better the U.S. by ninefold. The International Monetary Fund makes a similar forecast. After 2023 China besting the United States will continue.

Already China's economy is bigger than America's if measured in purchasing power parity. It will soon be ahead in nominal terms, how soon depends on the strength of the currency of each. Certainly, China's currency will remain stable and in terms of it being a global currency will obviously grow. Trade is more and more conducted in China's *yuan*, especially in oil and other resources.

Another factor is America's huge spending in areas China where spends much less. This is a reality for the U.S. it cannot correct easily.

America's criminal justice system is enormously expensive, larger in per capita terms than any OECD country and likely topping any nation in the world in term of total costs. The number of incarcerated is around double China even though China's population is four times larger. The unit cost of persons in prison in China is but a fraction of the U.S. while the rate of recidivism is much higher in America.

The monetary and social costs of illegal drugs and illegal immigrants in the U.S. is enormous. Americans rate them top issues facing the U.S. public. China hardly has such a problem.

Welfare, especially entitlements (most importantly social security and Medicare) are very expensive, and the costs are growing fast. The price of health care in the U.S. leads the world and is but a fraction of China's medical system even though China has recently passed the U.S. in life expectancy.

Meanwhile, lawyers and their lawsuits slow business activities and are a drag on the American economy bigger than any country in the world while China bears such costs that amount to only a fraction of the United States.

All of the above cost the U.S. triple digit billions of dollars every year.

Ditto with the interest on the national debt (which is predicted to increase by 5.8 trillion in the decade before 2029) and President Biden says he will not Welsh on it.

Another factor is the difference in ideologies and government planning in the two countries.

In China the government makes specific plans to improve science and technology, names those plans, and works with determination and drive to realise the goals set. In the U.S. planning improvements in science and technology are influenced by equity concerns that distract in terms of time and efficiency to reach objectives, not to mention the extra costs involved.

Decision making in the U.S. is also encumbered by bureaucracy and corruption, or crony capitalism. In some important respects big business controls the government in the U.S. Lobbyists influence policy to their advantage and sidestep rules and delay progress if it suits them.

Members of Congress are not included in laws against using inside information to make profits in the stock market. Many are millionaires as a result. There is no such problem in China. Gaming the system in China results in hard punishments.

It is no wonder then that China can build rapid trains, airports and highways quickly and at a fraction of a cost of doing the same thing in the U.S. In fact, the situation is such that China's rapid train system is the biggest in the world, while the U.S. has none and in some cases make plans for ten years and finish nothing (as in California for example).

It is understandable that the "Beijing consensus" (model for national development) has taken hold and has prevailed over the "American consensus" in much of the world. The Chinese decision-making process is seen as superior.

Likewise, confidence in democracy has waned throughout the world. Liberty House reports that it has fallen every year for the last 16 years, including importantly in the United States.

Also, President Biden must contend with the fact that planning must consider the reality that spending more money spurs inflation and increases the allocation for interest on the national debt and both are impediments to allocating more funds to science and technology.

Third, is the component of progress in science and technology called brains. This is a factor not given so much weight in the United States because of the belief that environment is more important than genes. In China and most of Asia (that is two-thirds of the world's population) it is the other way around.

Rankings of countries by I.Q. show that a country populated by eighty-some percent Chinese is number one in the world—Singapore. China ranks in most lists in the top ten. The United States does not rank in the top 25. The number one city in the world by I.Q. is Shanghai.

Meanwhile, the top universities in China outshine America's best in genius students owing to the fact U.S. ivy leagues admit students that are one-third legacy, one-third by affirmative action, and only a third for merit.

Further, according to recent data China has nine times the number of advanced students pursuing STEM majors compared to the U.S.

Another relevant matter is the U.S. has been restricting the number of students it welcomes from China and owing to discrimination against Chinese and killings (which police often ignore), 1,400 Chinese according to the *Wall Street Journal* left the U.S. to return to China last year. A large share were top scientists in their fields. One is reminded of Hitler's bias against Jews that resulted in many Jewish scientists leaving to go to America and there doing seminal work that advanced the U.S. in science and even helped produce the atomic bomb that aided the U.S. to win World War II.

In conclusion... British scientist Joseph Needham several decades ago in a still famous book entitled *Science and Civilisation in China* wrote that in the past China produced half of the innovations and breakthroughs in the world in science. Perhaps history is repeating.

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