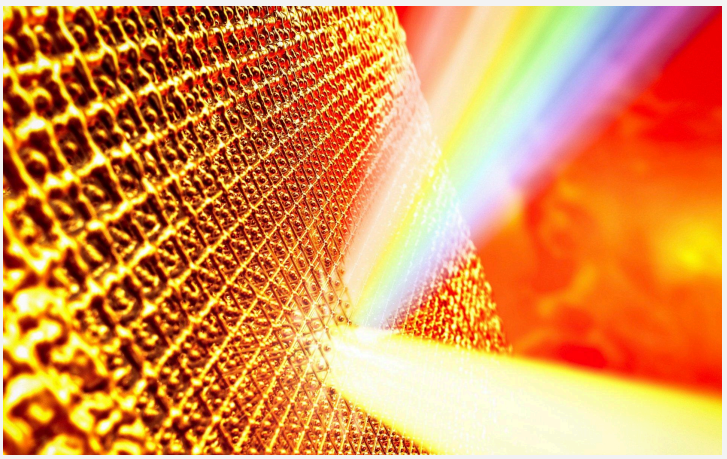
Gold Is Far From “Useless”

Money Metals, Mike Maharrey, August 1st, 2025



Warren Buffett once said, “Gold gets dug out of the ground in Africa or someplace. Then we melt it down, dig another hole, bury it again, and pay people to stand around guarding it. It has no utility. Anyone watching from Mars would be scratching their head.”

Gold is an important input in the electronics sector. The metal is an excellent conductor, efficiently dissipates heat, and, unlike copper or silver, doesn’t oxidize or corrode over time. Gold is also extremely malleable and can easily be formed into very thin wires and sheets.

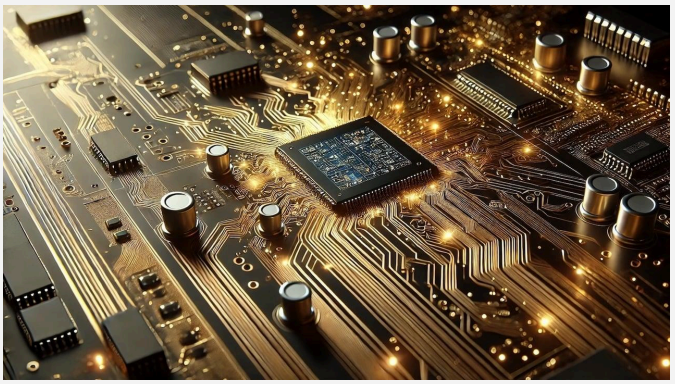
The electronics industry used 270.6 tons of gold in 2024, a 9 percent year-on-year increase.

The growth of artificial intelligence (AI) helped push overall industrial demand for gold higher. AI processors and High-performance Computing Chips (HPCs) use gold-plated receptors and bonding wires to ensure reliable connections. Gold is also used in massive AI data centers in server motherboards, connectors, and fiber-optic transceivers to maintain efficiency, reduce data transmission losses, and prevent corrosion.

After a weak 2023, the consumer electronics sector showed signs of recovery last year.

Market analysts estimate that smartphone shipments grew by 6 percent in 2024, driven by “super aggressive” growth among Chinese vendors focusing on sales of low-end devices within China and to other emerging markets. However, sales for

higher-end phones that tend to contain more gold fell last year, and Apple and Samsung both reported declining market share.



On the positive side, increasing penetration of WiFi 7 into the marketplace will likely drive gold demand in the wireless sector higher in the coming quarters. WiFi 7 infrastructure requires considerably more power amplifiers than WiFi 6, and that requires more gold.

The aerospace sector also uses gold. The proliferation of satellites for communications and internet service may represent a potential long-term source of demand for gold from both printed circuit boards and wireless components.

According to the World Gold Council, further growth in demand for low-Earth-orbit satellites (LEOS), along with the corresponding upgrades needed in many ground stations, will continue to support tech demand for gold.

Do you know what you get if you blow up gold?

Gold! Just in a lot smaller pieces.

One of the important characteristics of gold is that it's virtually impossible to destroy. You can melt a gold bar, but once it cools, it's the same bar of gold. And if you repeat the process 1,000 times, you still have that same gold bar, no worse for wear.

Now you can, in fact, blow up gold, at least *theoretically*. But scientists have discovered that doing so will take a lot more heat than originally thought. In other words, gold is even more indestructible than we imagined.

When researchers recently shot a laser at gold, they initially thought they had broken physics. You'll be glad to know, they did not. But they did end up revising a decades-old model in physical chemistry relating to the fundamental properties of matter. This has some interesting technological ramifications.

Scientists at the SLAC National Accelerator Laboratory used a laser to heat gold to 14 times its melting point! This was thought to have been impossible.

By the way, that's really hot. Gold melts at 1,948 degrees Fahrenheit.

Instead of trying to summarize the sciency stuff, I'm just going to let Gizmodo describe what researchers did.

"The study is based on a two-pronged experiment. First, the scientists used a laser to superheat a sample of gold, suppressing the metal's natural tendency to expand when heated. Next, they used ultrabright X-rays to zap the gold samples, which scattered off the surface of the gold. By calculating the distortions in the X-ray's frequency after colliding with the gold particles, the team locked down the speed and temperature of the atoms."

Prior to the experiment, there was a well-established theory stating structures like gold can only be heated to three times their melting point. Beyond that temperature, an "entropy catastrophe" occurs. In other words, the heated gold blows up.

According to the scientists, they were able to capture gold at a superheated temperature far above (14 times) its melting point. In this state, the metal exists in a "crystalline limbo" between a solid and liquid state. The experiment suggests that gold may not have a superheating limit. The researchers said that if they are correct, this could have a wide range of applications from space travel to nuclear chemistry to astrophysics.

"The new result disproves the conventional theory, but it does so in a big way by far overshooting the theoretical prediction, showing that it's possible to heat gold up to a jaw-dropping 33,740 degrees F (18,726 degrees C)."

It's important to note that this superheated state only lasted for several trillionths of a second, but scientists said it was still "*long enough to be interesting*."

"If you could prevent it from expanding, [theoretically speaking] you could heat it forever."

While gold is fundamentally money, it is increasingly being used in technological applications. Demand for gold in industry and tech was up 7 percent in 2024, driven by growth in the electronics and computing sectors.

Gold is one of the most useful metals in the world. Due to its utility, coupled with its scarcity, gold is also one of the most valuable metals in the world. The metal's inherent physical and chemical properties make it useful in many industrial and technological applications.

This is why we see gold increasingly used in the tech sector. In fact, gold would probably be used even more if it weren't so rare and expensive.

Gold is even helping unlock mysteries of the universe. The James Webb Space Telescope's ability to "see" deep into the infrared spectrum allows it to image the distant universe as far back as the first galaxies and even the first stars.

In December 2021, the James Webb Space Telescope (JWST) was launched. Over the last several years, the telescope has produced stunning images that are helping scientists to better understand the universe.

The power of the James Webb Space Telescope dwarfs that of its predecessor and offers unprecedented resolution and sensitivity. The telescope's ability to "see" deep into the infrared spectrum allows it to image the distant universe as far back as the first galaxies and even the first stars.

Gold helps make this amazing imaging possible.

Each of the telescope's 18 gold-coated, hexagonal mirrors has a diameter of just over 4 feet. Stitched together in a honeycomb pattern, the mirrors have a total diameter of 6.5 meters (21.5 feet). The mirrors are made of beryllium and coated with a microscopic layer of pure gold.

Why gold?

Because the yellow metal is one of the very best materials at reflecting infrared light. Scientists used beryllium as the base for the mirrors because the metal exhibits almost no thermal expansion at extremely low temperatures. In other words, the extreme cold in space won't cause the panels to warp. On the other hand, gold is comparatively temperature sensitive. That's why a thin layer was put on top of the beryllium base.

Scientists say the JWST has seven times the light-gathering power of the Hubble Space Telescope.

From time to time, you will hear people inexplicably say, "Gold is just a useless metal." They claim that gold's value is simply "a matter of faith."

This is sheer nonsense. In fact, gold is one of the most useful metals on the planet and would probably have even more practical applications if it weren't so rare and expensive.

The truth is, gold did not become money because it wasn't useful for anything else. Its role as money evolved because it *is* so valuable and has so many uses.

A trip down memory lane, recalls the Coca-Cola ad campaign featuring the slogan, "It's the Real Thing." But when it comes to money, gold and silver are the real thing.