

The Chip Reversal

About Taiwanese semiconductor manufacturing and toothpaste

#America #Taiwan #Germany #IT

Tooth paste as we know it today was **invented at around 1890**, when New Brunswick consumer products giant Johnson & Johnson was probably one of the first to introduce a liquid toothpaste in collapsible metal tubes. Previously, such tubes had been used mainly by artists, who could more easily travel around the country with paint in tubes.

However, much like artists' use of paint, toothpaste became a one-way disposable product. Once dispensed from a metal and later plastic tube, it is virtually impossible to return the liquid paste back to the tube, which may have been the reason why literally all future toothpaste manufacturers from about 1890 onwards also used tubes to package their product.

Recent events surrounding the world's number one electronic chip maker, Taiwan Semiconductor Manufacturing Company (TSMC), are not unlike those irreversible toothpaste tubes. Headquartered in Hsinchu, approximately 80 kilometers south of Taipei, TSMC is the world's undisputed leader in semiconductor manufacturing. The company and its affiliated Taiwanese manufacturing equivalents have managed to account for about 90% of the patents of the world's chip production over the years. In 2021, TSMC's total **revenue exceeded 67 billion euros**, the company's top 10 customers **are comprised of 70% US American corporations**. Working at TSMC is challenging and tough, the chipmaker demands total dedication with little time off, some say it has literally squeezed the brains out of countless engineers in order to maintain TSMC's competitive edge and thus secure the wellspring of Taiwan's prosperity.

In the summer of 2022, during a period of political tension, the then Speaker of the US House of Representatives **Nancy Pelosi visited the Chinese island** and independent nation. The purpose of the visit was not only to demonstrate the high-level political support of the US government for Taiwan amid harsh messages from Beijing, but most likely also to personally convey a radical new paradigm shift. Pelosi was probably one of the first senior US politicians to tell TSMC that things were about to change after many years in which US business leaders promoted offshore semiconductor production as literally the only option for the entire US economy to remain competitive.

Key players in the US government seem to have suddenly become frightened of TSMC's monopolistic status, especially in light of Beijing's various aggressive announcements about eventually conquering Taiwan and reuniting the independent island with mainland China. Semiconductor chips are a key commodity in any modern economy, and Beijing's not totally impossible control and ownership of TSMC could one day put the US in a defensive and potentially blackmailable position.

TSMC Top Customer Revenue Share

	2015	2020	2021
*Apple	15.9%	25.1%	23.9%
*AMD	4.3%	7.0%	10.2%
*Qualcomm	15.3%	8.0%	8.2%
MediaTek	6.7%	5.9%	8.1%
*NVIDIA	5.8%	7.1%	7.6%
*Broadcom	7.4%	5.9%	6.6%
*Intel	4.1%	4.1%	5.0%
Will Semi	2.8%	1.8%	1.9%
NXP	1.7%	1.3%	1.6%
*Marvell	3.9%	1.2%	1.6%
Infineon	1.8%	1.3%	1.5%
HiSilicon	4.1%	12.5%	0.0%

*US based

Top TSMC Customers

Specifically, the **US government had likely announced** during Nancy Pelosi's 2022 visit to Taipei that it will henceforth only allow semiconductor chips with explicitly US patented technology to be exported and shipped to China and the world - including those made in, sold from and shipped to the US by TSMC. The result is a potentially huge problem for TSMC in Taiwan, because the overwhelming R&D innovation and technological advances in semiconductors do not really come from Silicon Valley, California or Boston, but from highly dedicated engineers working in the Taipei region.



The Taiwanese manufacturing giant did not wait long to respond to **the US patent stranglehold**. It began secret negotiations with the German government as early as August 2022, when **it was announced** that a first German delegation would visit Taiwan in October, and quickly **drew up plans** to build a semiconductor factory near Dresden. In the early days of January 2023, a second German delegation of

lawmakers visited Taiwan's President Tsai Ing-wen, most likely to discuss and promote TSMC's plans to circumvent the far-reaching stranglehold of the US.

German officials could be in for a rather hot seat. Chancellor Olaf Scholz and his aides may have explained to their US counterparts that it would be extremely difficult to move the chip manufacturing giant from Taiwan to the United States.

Sort of like putting toothpaste back into collapsible tubes.

<https://www.sun24.news/en/the-chip-reversal-about-taiwanese-semiconductor-manufacturing-and-toothpaste.html>