

Summary of Chokepoints: China’s Self-Identified Strategic Technology Import Dependencies

Science and Technology Daily, a Chinese state-run newspaper, published a series of articles in 2018 on 35 critical technologies that China imports from the United States, Japan, and Europe. The articles assert that loss of access to these “chokepoint” technologies would disrupt vital Chinese industries. Key points from the series include:

- Chinese companies drive many of these imported dependencies because they prefer to buy vital high-end components from trusted foreign suppliers rather than from untested or subpar domestic providers.
- Technological breakthroughs at Chinese universities and research institutes frequently fail to find commercial applications, leaving the Chinese market dominated by foreign products.
- China is attempting to achieve import substitution for many of these technologies through a combination of strategies, including homegrown innovation, reverse engineering, and corporate acquisitions.

See the table below for a list of all 35 technologies, in the order in which the newspaper profiled them:

China’s “Chokepoint” Technologies

(1) photolithography machines	(2) microchips	(3) operating systems	(4) aircraft engine nacelles	(5) touch sensors (for industrial robots)
(6) vacuum evaporators	(7) high-end radio frequency (RF) components	(8) iCLIP primers and reagents	(9) heavy-duty gas turbines	(10) LiDAR
(11) airworthiness standards	(12) high-end capacitors and resistors	(13) electronic design automation (EDA) software	(14) high-end indium tin oxide (ITO) target materials	(15) core algorithms (for robotics)
(16) aviation-grade steel	(17) milling cutters	(18) high-end bearing steel	(19) high-pressure piston pumps	(20) aviation design software
(21) high-end photoresists	(22) high-pressure common rail direct fuel injection systems	(23) transmission electron microscopes (TEM)	(24) main bearings for tunnel boring machines	(25) microspheres
(26) underwater connectors	(27) key materials for fuel cells	(28) high-end power sources for underwater welding	(29) lithium battery separators	(30) components for medical imaging equipment
(31) ultra-precision polishing techniques	(32) epoxy (for high-end carbon fiber)	(33) high-strength stainless steel	(34) database management systems	(35) scanning electron microscopes (SEM)

For more information:

- Download the report: cset.georgetown.edu
- Contact Us: Ben Murphy (ben.murphy@georgetown.edu)