

## Appendix 1.2: One-page visual snapshot

Table 6: Lead country and technology monopoly risk.

Technology	Lead country	Technology monopoly risk
<b>Advanced materials and manufacturing</b>		
1. Nanoscale materials and manufacturing	China	high
2. Coatings	China	high
3. Smart materials	China	medium
4. Advanced composite materials	China	medium
5. Novel metamaterials	China	medium
6. High-specification machining processes	China	medium
7. Advanced explosives and energetic materials	China	medium
8. Critical minerals extraction and processing	China	low
9. Advanced magnets and superconductors	China	low
10. Advanced protection	China	low
11. Continuous flow chemical synthesis	China	low
12. Additive manufacturing (incl. 3D printing)	China	low
<b>Artificial intelligence, computing and communications</b>		
13. Advanced radiofrequency communications (incl. 5G and 6G)	China	high
14. Advanced optical communications	China	medium
15. Artificial intelligence (AI) algorithms and hardware accelerators	China	medium
16. Distributed ledgers	China	medium
17. Advanced data analytics	China	medium
18. Machine learning (incl. neural networks and deep learning)	China	low
19. Protective cybersecurity technologies	China	low
20. High performance computing	USA	low
21. Advanced integrated circuit design and fabrication	USA	low
22. Natural language processing (incl. speech and text recognition and analysis)	USA	low
<b>Energy and environment</b>		
23. Hydrogen and ammonia for power	China	high
24. Supercapacitors	China	high
25. Electric batteries	China	high
26. Photovoltaics	China	medium
27. Nuclear waste management and recycling	China	medium
28. Directed energy technologies	China	medium
29. Biofuels	China	low
30. Nuclear energy	China	low
<b>Quantum</b>		
31. Quantum computing	USA	medium
32. Post-quantum cryptography	China	low
33. Quantum communications (incl. quantum key distribution)	China	low
34. Quantum sensors	China	low
<b>Biotechnology, gene technology and vaccines</b>		
35. Synthetic biology	China	high
36. Biological manufacturing	China	medium
37. Vaccines and medical countermeasures	USA	medium
<b>Sensing, timing and navigation</b>		
38. Photonic sensors	China	high
<b>Defence, space, robotics and transportation</b>		
39. Advanced aircraft engines (incl. hypersonics)	China	medium
40. Drones, swarming and collaborative robots	China	medium
41. Small satellites	USA	low
42. Autonomous systems operation technology	China	low
43. Advanced robotics	China	low
44. Space launch systems	USA	low