

GROUP 4: TECHNOLOGICAL THREATS (47 Causes)

(Human-engineered risks from innovation, infrastructure, and unintended consequences)

4A: Nuclear, Weapons & Energy (15 Causes)

1. **Cascading Multiple Nuclear Accidents**
2. **Multiple Nuclear Accidents from Extreme Events**
3. **Autonomous Weapons Acceleration**
4. **Swarm Attacks**
5. **CO₂ Cylinder Storage Failures**
6. **Nuclear Waste Management Failures**
7. **Radiological Warfare (Cobalt Bombs)**
8. **Hydromethane Risks**
9. **Nuclear Winter**
10. **Oil-Tectonic Plate Interactions**
11. **Oil Transition Shock**
12. **Geoengineering Termination Shock**
13. **Poorly Implemented Geoengineering (SRM/Carbon Engineering)**
14. **Geoengineering Governance Risks Without Global Framework**
15. **Militarization of Space**

4B: AI, Cyber & Space (18 Causes)

1. **Simulation Shutdown**
2. **Cyberattacks on Industrial Control Infrastructure**
3. **Truth Collapse from AI-Generated Content**
4. **Deepfakes for Blackmail & Emotional Manipulation**
5. **High-Energy Physics Experiments (Vacuum Decay, Strangelets)**
6. **Widespread Critical Cyber-Infrastructure Failure**
7. **Misaligned AI (Systemic Risk)**

8. **Autonomous AI Disinformation Generators**
9. **Global GPS/GLONASS Disruption**
10. **Kessler Syndrome (Orbital Debris Congestion)**
11. **Internet of Things Vulnerabilities**
12. **AI Risks in Critical Operational Systems**
13. **Ship Sonars & 5G/6G EMF Pollution**
14. **Uncontrolled Cognitive Enhancement**
15. **Nanotechnology (Gray Goo, Self-Replicating)**
16. **Hostile Extraterrestrial Life**
17. **Evolutionary Regret**
18. **Additional Physics Experiments**

4C: Infrastructure & Mining (14 Causes)

1. **Over-Water Architecture Adaptation Failures**
2. **Self-Destruction of Cities**
3. **Intensive Aquaculture Collapse**
4. **Infrastructure Collapse from Subsidence**
5. **Cooling System Failures**
6. **Massive Wave Barrier Construction Risks**
7. **Cascading Prolonged Blackouts**
8. **Systemic Grid & Digital Network Failures**
9. **Critical Coastal Infrastructure Failure**
10. **Major Dam & Hydraulic System Failures**
11. **Critical Mineral Mining Risks (Lithium, Cobalt, Nickel)**
12. **Systemic Risks in Megadense Coastal Cities**
13. **Aquifer Overexploitation & Subsidence**
14. **Stagnant Society**

15. Note on Addition: Biological swarm attacks blend biotech (GROUP 3) with weaponized delivery systems (GROUP 4A), making 4A the best fit. Total causes now 48 for balance. If you prefer it in GROUP 3B (as a pathogen escalation), we can move it there instead!