Five emerging technologies will potentially transform society.

1. Genome Editing
Genome editing: A technique used to make specific and intentional additions, deletions, or alterations to genetic material. It could:
- prevent, treat, or cure medical conditions
- create unintended and unforeseen genetic changes in the population

2. Artificial Intelligence and Automation
Artificial intelligence (AI) could:
- produce smarter machines that perform more sophisticated tasks
- disrupt the job market by eliminating jobs and creating others with new skill requirements
While its use is expected to grow, AI that is as intelligent as a human is not expected to occur in the next 20 years.

3. Quantum Information Science
Quantum information science: uses the behavior of atoms or molecules to obtain and process information in ways that existing systems cannot. It could:
- drastically improve information acquisition, processing, and transmission

4. Brain/Augmented Reality
Brain-computer interfaces: systems that connect the human brain to an external device. Research is ongoing to create implantable versions that could, for example, compensate for vision loss or hearing impairment.

Augmented reality: superimposing a digital image onto a view of the real world through a device, such as a smartphone camera. It is a new trend in entertainment, education, and health care.

5. Cryptocurrencies and Blockchain
Cryptocurrencies: virtual currencies—digital representations of value that are not government-issued—that operate online and verify transactions using a public ledger called blockchain.

Cryptocurrencies offer:
- benefits such as anonymity and lower transaction costs
- drawbacks such as making it harder to detect money laundering and other financial crimes
Blockchain could:
- reshape financial services
- have more security vulnerabilities as quantum computing, an area of quantum information science, develops

WHAT ARE THE IMPLICATIONS?
Continued debate, study, and evaluation are needed in the public sector to consider the potential implications:
- economic
- ethical
- privacy
- safety
- security
- societal

For more information, see GAO-18-396SP at GAO.GOV.