📎 Attachment 7: Blockchain Beyond Cryptocurrency

🔹 Title:

Blockchain 2025: Transforming Trust, Transparency & Traceability

🎯 Objective:

To explore how blockchain technology, originally built for cryptocurrencies, is now being leveraged across industries for transparency, security, and decentralization.

💡 Key Concepts:

1. What is Blockchain?

A distributed digital ledger technology that records transactions across multiple computers in such a way that the records cannot be altered retroactively.

1. Decentralization:

Unlike centralized databases, blockchains are peer-to-peer, eliminating the need for intermediaries.

1. Immutability & Transparency:

Once data is added to the blockchain, it is nearly impossible to change, ensuring trust and accountability.

🌐 Applications in 2025:

Supply Chain Management:

Track goods from origin to delivery with complete transparency (e.g., in food, pharmaceuticals, luxury goods).

Voting Systems:

Tamper-proof digital voting via blockchain is being tested for secure democratic elections.

Digital Identity:

Self-sovereign identities allow users to control personal data and access services without risk of theft.

Smart Contracts:

Self-executing contracts coded on blockchain remove the need for legal intermediaries.

Healthcare:

Patient records stored securely with access control via blockchain improve privacy and data interoperability.

Real Estate:

Transparent and verifiable property records and transactions via NFT-based tokens.

📊 Market Trends (2025):

Blockchain market expected to reach $94 billion by 2027.

Over 81 of top 100 public companies have active blockchain projects (e.g., Walmart, IBM, Maersk).

Governments worldwide implementing CBDCs (Central Bank Digital Currencies) using blockchain backbones.

⚠️ Challenges:

Scalability:

Blockchains like Ethereum still face congestion and high fees.

Energy Consumption:

PoW systems consume vast energy (although Proof of Stake is more sustainable).

Regulatory Hurdles:

Legal clarity is still evolving across borders.

✅ Conclusion:

Blockchain is not just for crypto. In 2025, it is enabling a new era of decentralized trust and verifiable digital interactions. From finance to food safety, it’s a foundational tech with far-reaching implications.