

## Week 6 – Crypto Currency

### Blockchain overview

a digital innovation that is poised to significantly alter financial markets within next few years in a cryptographic ecosystem + has potential to impact trusted computing activities & cybersecurity concerns  
(Third party trust orgs no longer needed. Reduce fraud. An online ledger that records every transaction made)

### Cryptocurrency

a digital currency that is created through mathematical engineering (algorithm)

- designed to be open, anonymous, secure, fast and bypasses traditional financial structures
- Bitcoin created 2009 (first cryptocurrency/altcoin)

### Advantages of crypto vs traditional money

Complete anonymity (carries no personal info) = Interest rates, fees, surcharges paid on bank account/credit card don't affect transactions or cryptocurrency (less administration costs)	Personal info is attached to every transaction (tracks you and notes your purchases)
Not stored in traditional banks = accounts can't be frozen	Accounts can be garnished/frozen completely

### How Crypto works

#### Mining Process

Servers generate complex math problems → miners generate solution → to release 'coins'

### Role of Blockchain in mining Cryptocurrencies

User 'A' sends fund to user 'B' → transaction converted to a 'block' → transaction is broadcasted on network for validation → this block is added to the earlier non-reversible process chain of block → user 'B' receives funds from user 'A'

### Ethereum Alliance

**Ethereum** - a decentralized platform that runs *smart contracts*: applications that run exactly as programmed without any possibility of downtime, censorship, fraud, or third party interference

Ethereum project started up by an ether presale in Aug 2014 by world-wide fans. Developed by the Ethereum Foundation (Swiss nonprofit) with individual and org contributions around world.

### What is Ether?

- Crypto-fuel for the Ethereum network
- Necessary element for operating Ethereum (decentralized app platform)
- A form of payment made by clients to machines executing the requested operations, functioning as the incentive that ensures that developers will write quality applications, and that the network remains healthy

Issuance rate/total supply of Ether was decided by donations gathered in 2015 presale

Developers building apps + users wanting to access/interact with smart contracts using Ethereum blockchain need ether.

### Cross Industry Adoption

Sectors leading the way in blockchain implementation:

- Consumer products
- Manufacturing
- Technology
- Media
- Telecommunications
- Health care
- Life sciences

39% senior execs indicate they've little/no knowledge of blockchain tech

42% believe it will disrupt industries vs. many deemed it crucial for companies

### Financial Services Industry

Creating assurance in Blockchain = trust and efficiency are main value drivers. Finance world driven by tech. Tracking risk + monitoring compliance with laws/regulations within complex cybersecurity enviro requires considerable time and resources

Saw opportunities in blockchain + been investing heavily in its usage as part of private implementations