

# Blockchain's Effect on Risks Facing Precision Ag Product and Service Providers



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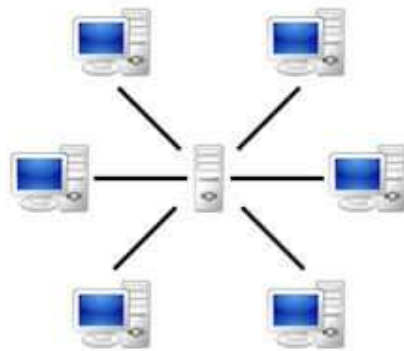
# HUSCH BLACKWELL



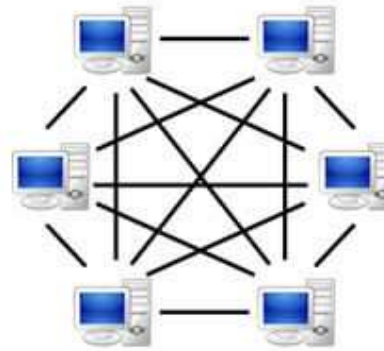
# What Is Blockchain?

- Blockchain is a distributed electronic ledger.
- Blockchain technically is:
  - A decentralized network.
  - Peer To Peer.
  - Transparent to Members (Pseudo-anonymous).
  - Irreversible.
  - Computational logic compatible.

# Decentralized and Peer To Peer Network



Server-based



P2P-network

([https://classes.dma.ucla.edu/Fall15/161/projects/chan\\_c/Desma%20161/Project2.html](https://classes.dma.ucla.edu/Fall15/161/projects/chan_c/Desma%20161/Project2.html))

\*All nodes sync at a given time interval.

- **Transparent**
  - All members of the Blockchain can see contents of each block in chain.
- **Pseudo-Anonymous**
  - Bitcoin utilizes a user address, which is a 33-34 alphanumeric character
- **Irreversible**
  - Implements features to prevent changing the data in the block.
- **Computational Logic**
  - Executing and triggering automatic action

# Example – Tracking Salmon from Ocean to Plate

Block 1

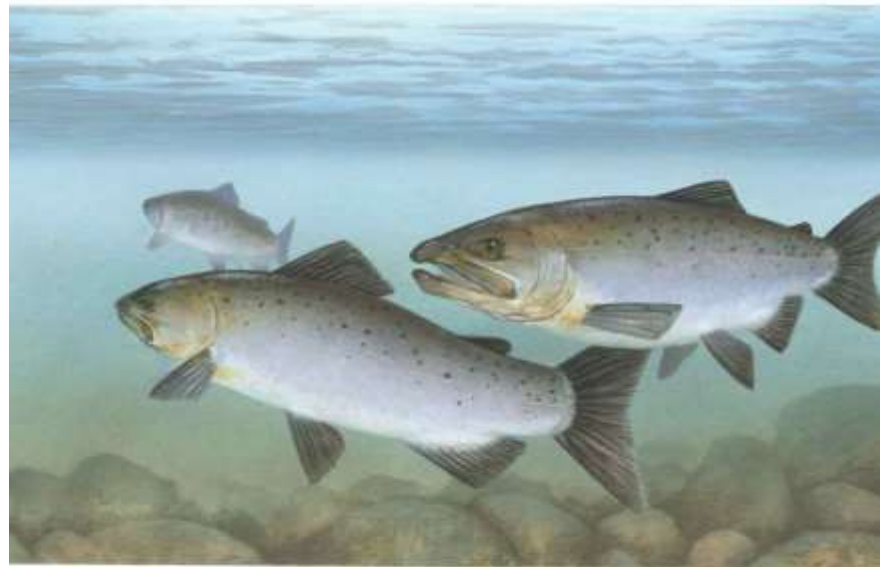
Action: Caught

Location: Pacific Ocean Off  
Coast of Alaska

Species: Salmon

Fish Number: 12

Date: July 22, 2017



## Example – Tracking Salmon from Ocean to Plate

### Block 2

- Action: Fillet and Packaging
- Place: Seattle, Washington
- Species: Salmon
- Fish Number: 12
- Date: July 24, 2017
- Hash: 12CAS7232017 (Hash of Block 1 – Identifying number and first letter of each data point, and date)



## Example – Tracking Salmon from Ocean to Plate

THE “BLOCKCHAIN” – The hash is the chain that permanently links each block to the data of the previous block.

A “Hash” is a data point of fixed sized generated by running a data set through an hash generating function.

- Usually an alphanumeric string.
- Changing the underlying data will result in a different hash when running the same hash function.



## Example – Tracking Salmon from Ocean to Plate

### Block 3

- Action: Preparation of Portion for Dinner
- Place: St. Louis, MO
- Species: Salmon
- Fish Number 12
- Portion Number: 2
- Date: July 26, 2017
- Hash: 12FSS7242017 (Hash of Block 2)



## Example – Tracking Salmon from Ocean to Plate

### Block 4

- Action: Served Customer
- Place: St. Louis, MO
- Species: Salmon
- Fish Number 12
- Portion Number: 2
- Date: July 26, 2017
- Hash: 12-2PSS7262017 (Hash of Block 3)



Picture from: <https://authoritynutrition.com/wild-vs-farmed-salmon/>

Customer could request restaurant to show her the Blockchain showing the travel from harvest to plate for the portion of wild-caught pacific salmon to ensure she is getting what was offered.

# Important Data Security Features

- Access limited to authorized and authenticated members.
- All actions by authorized members are recorded in the Blockchain (permanent 'paper trail')
- Real-time data collection, time stamp, and storage
- Virtually "hack-proof"

## Another Application: Smart Contracts

- A fully or partially self-executing contract.
- Software program containing the terms and obligations of the transaction are agreed upon and pre-programmed into the smart contract.
- Actions automatically occur when certain conditions exist or are sensed.
- Automate payments based upon delivery of items
  - Peer to Peer Transaction
  - No invoicing and payment delays

## Another Application: Smart Contracts

- Fertilizer contract example:
  - Precision Ag device/software identifies need for fertilizer application and initiates an order for the fertilizer combination with traceable history, order need trigger stored in the blockchain
  - Precision Ag software “auctions” order with sale and delivery terms (50% paid upon order acceptance; 50% paid upon delivery), terms stored in the blockchain
    - Precision Ag software separately confirms history of Fertilizer Lot Number(s) stored in the blockchain
  - Dealer accepts order with winning auction bid and instantly receives 50% prepayment – acceptance and payment stored in blockchain
  - Truck driver updates blockchain with pickup information
  - Truck driver updates blockchain with delivery information
    - Dealer instantaneously paid remaining 50% balance upon delivery confirmation

## Impact on Legal Exposure

- Litigation risk exists throughout the agriculture supply chain
- Exposure can be reduced through block chain:
  - Responsibilities can be clearly allocated through the supply chain
    - Set terms of relationship in blockchain
    - Track actions of the parties in real time
  - Failure at the end may not create exposure to be shared across all supply chain members:
    - Transparency shows exactly where the error took place.
    - Data authentication structure of the blockchain virtually eliminates potential for false information to be added to the block chain by one member to cover themselves
      - wild caught, organic, free range, etc.

# Impact on Legal Exposure

- The data is transparent but who controls access and usage of data stored in the blockchain?
  - The access rights of the blockchain can be controlled through initial set-up and configurations.
    - Collection of field source data in real time – limits can be placed on who can view the contents of the blockchain.
  - Contract language is critical
    - Data licenses, confidentiality obligations
    - Limitation of liability? Indemnification?

# Impact on Legal Exposure

- Who owns the right to transfer or commercialize data?
  - Fertilizer supplier may want to access purchase data to analyze the market.
  
- Are you assuming any new product liability risk by collecting and possessing the collected data?
  
- If there is a lawsuit, is the blockchain data admissible?
  - Blockchain will likely assist in proving the overriding transaction(s)
    - However, court may require ability to authenticate the blockchain.
      - Is the provider-licensor willing to assist you?



# Impact on Legal Exposure

- Public vs. private/proprietary blockchain platforms
  - Who stands behind the platform/application if something goes wrong?
    - Is the platform/application provider insured, have assets to cover judgment?
- Suggest reviewing warranty provisions of blockchain application providers and the underlying platform terms of use.

Questions?

# THANK YOU!

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