bext360 – 4 Major Changes in Global Supply Chains

- **Technology Infrastructure**
  - Blockchain, Internet-of-Things (IoT), Machine Vision, Machine learning, Digital Payments
  - Driven by other sectors such as Autonomous Cars and Crypto currencies.

- **Growing Demand For Commodities**
  - Coffee 50% Increase by 2032. Supply & Demand gap.

- **Country of Origin Infrastructure**
  - Electricity, Cell/Smart Phones, Mobile Payment, Microfinance/SME Lending, Growing Domestic Markets for Goods.

- **Conscious Consumerism**
  - Conscious Consumerism- 8 in 10 consumers check the origin of their food when purchasing products.
Goal
Increase business success of coffee producers

- Loans and Timely Payment
- Risk Mitigation
- Value of product
- Fair Participation in Global Supply Chain
Available Proven Technologies

bext360 – 4 Major Changes in Global Supply Chains

**BLOCKCHAIN**
- Immutable record of origin
- Smart Contracts
- Traceability
- Transparency

**CRYPTOCURRENCY**
- Digital Payments
- Inventory Valuation
- Working Capital Loans
- Capital Equipment Financing

**AI/MACHINE LEARNING**
- Closed loop analysis
- Rapid Classification of objects

**MARKERS**
- Florescent Food Grade Markers
- DNA sequence
- Unique Identification

**VERIFICATION**
- AI/Machine Vision
Machine vision
AI inference

~10,000 objects per minute
~166 objects per second
Inference done in parallel ~9ms per 30 milliseconds to sort
Machine Vision and Artificial Intelligence
Identify Quality and Disease
Traceability: source to destination and back

FARMERS/ COOPERATIVES
WASHING STATION/ COLLECTION CENTER
MILLING/ PROCESSING
CUPPING/ QUALITY ANALYSIS
EXPORT/IMPORT.
ROASTING/ RETAILING

Source/Collection  Data  History

\( s \)  \( H^1(s) \)  \( H^2(s) \)  \( \ldots \)  \( H^n(s) \)
Providing capital to producers

- Exporter
- Cooperative
- Small Holder

Bank
Multilateral Organization (IFC, IDB, OPIC)
NGO (CRS, Bloomberg, CGI)

Working Capital Loan

Coffee Cherry Token (CCT)

Smart Contract

Collector
Providing capital to producers

- Exporter
- Cooperative
- Small Holder

Bank
Multilateral Organization (IFC, IDB, OPIC)
NGO (CRS, Bloomberg, CGI)

- Working Capital Loan
- Principal
- Interest

- Roaster

- Exporter
- Cooperative
- Small Holder

- Processing
- Milling
- Cupping
- Quality Analysis
- Export/Import
- Roasting
- Retailing

- Accounts Payable
- Accounts Receivable

- 30, 60, 180 Days
Providing capital to producers

Exporter
Cooperative
Small Holder

Bank
Multilateral Organization (IFC, IDB, OPIC)

NGO (CRS, Bloomberg, CGI)

Complete Transparency

Smart Contract

Premium/Bonus Payment

Fair Trade Payment

Tip the Community

Consumer

Cupping

Export

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Enabling conscious consumerism

**Farmers/Cooperatives**
Farmers receive fair and transparent payment for their coffee—immediately, cutting out middlemen who offer below market prices.

**Community**
Churches, Hospitals, Internet, Power, Schools (CHIPS)

**Conscious Consumerism**

**Consumers**
Consumers purchase a fully traceable cup of coffee that was sourced using a "trust" network.
Markers

MARKING TECHNOLOGIES
- Tagging (RFID)
- DNA
- Environmental Conditions
- Advanced Markers

VERIFICATION
- Off-Line
- In-Line
- Cost/Time
- Artificial Intelligence to Identify Fraud

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Microbial signatures from cherries were clearly differentiated between farms.

Deep neural network classifier correctly identified the varietal with 100% accuracy.
Digitized Supply Chain
Sustainability Quantified

Supply Chains

<table>
<thead>
<tr>
<th>Tier 0 Roaster</th>
<th>Tier 1 Importer</th>
<th>Tier 2 Exporter</th>
<th>Tier 3 Cooperative</th>
<th>Tier 4 Farm</th>
<th>Tier 5 Earth</th>
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</thead>
</table>

Rwanda to Denver

Per KG

- Rwanda to Denver: 86
- Importer: 73
- Coop 1: 92
- Coop 2: 67
- Farm: 87

Supply Chain Diagram:

- Tier 0: Roaster
- Tier 1: Importer
- Tier 2: Exporter
- Tier 3: Cooperative
- Tier 5: Earth

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Software as a Service (SaaS)  
Traceability and Sustainability

Every single step—at your fingertips.

- Immutable Blockchain
- Sustainability Metrics and Actionable Management Tools
- Track Across Multiple Owners
- Tokenized Value for Commodities Enabling Lending
- Marking and Verification

Verifiable proof that you are doing everything you claim to be.