Blockchain in the Food Sector
From Story-Telling to Fact-Telling
Alessandro Chelli
21/01/1992

- CEO and Co-Founder of Apio
- Computer Science Engineering Graduation at «Università Politecnica delle Marche»
- At the age 22 y.o. with Lorenzo Di Berardino, Alex Benfaremo and Matteo Di Sabatino, we opened Apio to offer strong innovative & digital know-how to Companies;
- Apio is a young company founded in 2014, pioneer of the Internet of Things in Italy. Today Apio defines itself as a Venture Builder that builds innovative solutions and products by exploiting the strong know-how acquired on the Internet of Things, Blockchain and A.I. to renew companies' businesses. Its customers include the largest Italian and European companies such as Acea, Samp, VarGroup, Enea, A2A and Indra;
- Apio collaborates with Var Group on Blockchain projects. We provide solution for Food & Fashion Market. In 2019 we was the first IBM Food Trust certified partner worldwide.
Venture Builder

Know How

**Internet of Things**: collecting data and information from the sensors/actuators field for their processing in Cloud;

**Artificial Intelligence**: actions driven by the data through the use of data mining and machine learning techniques;

**Blockchain**: creation of private networks, smart-contract, tokens and communication interfaces with network blockchain.

**Cloud**: development micro-service Cloud, SaaS and RESTful API oriented, for maximum scalability and performance
Presentation Breakdown

- Blockchain Hype Cycle
- When to use the Blockchain
- Useful Resources
- Food & Blockchain. Why it matters
- Trusty
- Use Case #1. Small Food Producer
- Use Case #2. Long Supply Chain
- Use Case #3. High Quality Food Producer
Blockchain Hype Cycle

Technology is Ready and in the next year will be deployed on a large scale.
When to use Blockchain/DLT

- **Share** information securely, with identity and timestamp *(Timestamping & Identity)*;
- **Share** and **Sell** Assets securely and transparently without particular central Authority *(Token)*;
- **Automate** flow between different parties *(Smart Contracts)*
Useful Resources

Books
- The Blockchain and the New Architecture of Trust
- Mastering Bitcoin
- Let My People Go Surfing
- The Omnivore's Dilemma
- Zen and the Art of Motorcycle Maintenance

TVs
- Rotten
- Food, Inc.
- Netflix Documentaries
Food & Blockchain
Why it matters
Mobile Generations
Lost in the Supermarket
Choices
Information Problem
The easiest and most secure way to share information alongside the supply-chain and creating Customer Engagement.
Features

- QR-CODE and Web Page generator for Food Products
- Notarization through Blockchain/DLT Technology (es. IBM Food Trust)
- Integration with ERP systems
- Offline Analytics and Customer Insights
In partnership with

Small Food Producers

by Apio

Humanity first
Colli del Garda Gourmet

• Demonstrate the quality of the Italian Prosciutto and others pork products;
• Show without filters the production process;
• Integrate the supply-chain with international standards (GS1 EPCIS);
• Create Customers Engagement (with supplier and end-users)
Supply-Chain

IBM Food Trust

Farm
La Cavallara

Slaughterhouse
Opas S.r.l.

Seasoning
La Casa del Prosciutto

Producers
Agnetti

Consumer
Final Considerations

• Every suppliers insert data through Web Application;
• ERP and Enterprise Softwares automate also the Data-Entry process;
• Several Declaration written in Blockchain/DLT creates trust among suppliers and customers.
• In the future, the declarations mixed up with the invoices will be shared with the certificators to accelerate the certifications process.
Colli del Garda

How blockchain helps food stay healthy, high-quality and delicious

To reassure its customers of the consistent quality of its cured meat, a family-owned company Colli del Garda joined with IBM Business Analytics and Apio S.r.L. to launch a blockchain solution that allows everyone from staff and suppliers to customers to have a transparent and secure view of product history.

International Visibility
Humanity first

by

Premium Quality Food Producer

by Apio

Humanity first
There is a farm that produces pasta in the middle of a wheat field.

**Mancini Tactions:**
Revenues 2019: 3,5M€+
Employees: 30
Wheat Ha 2019: 477 (+25% - 2018)
Premium Food Producer (Mancini)

- Automated Data Entry (Mancini Pasta ERP Integration)
- Track & Trace of more than one hundred products and two hundred lot per month
- Automated Packaging Printing (with Lot Information) through Industry 4.0 Connected Printer.

Industry 4.0 integrated. Machine automatically prints QR-Code on Packaging

Transparency through Public Blockchain Technology

Custom public page in order to create Customer Engagement and share provenance and traceability
La nostra pasta viene prodotta con il grano duro coltivato direttamente dall'azienda. Gli unici ingredienti utilizzati sono la semola e l'acqua. Utilizziamo trafilte e scolati in bronzo ed essicchiamo la farina a temperature inferiori a 44°C impiegando per la pasta corta circa 20 ore e per la pasta lunga circa 40 ore.

Le penne sono lunghe 50mm e larghe 10,2mm. Il tempo di cottura è di 7-9 minuti.

**Tempo di Cottura**
7-9 min
In partnership with

Fair & Trusty Trade
From Bean to Bar

by Apio
Humanity first
Cocoa Supply-Chain

«The story of chocolate is like an hour glass, where you have millions of small holders growing cocoa at the very beginning of the story, and at the end of the story you have millions of consumers eating chocolate. But right at the center of the hour glass are handful of extremely powerful companies. These companies are the Cocoa Traders»

Etelle Higonnet
Senior Advisor, Mighty Earth
Ivory Coast

• Ivory Coast and Ghana produce over 60% of Cocoa Worldwide;
• In 2019 Ivory Coast produced almost 2.2M ton of Cocoa;
• In Ivory Coast there is almost 600k of growers and over 6M of people depend on Cocoa’s Business;
• Collapse in prices takes Grower’s income under 200$/year
### Consumer’s Question

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<th>Cooperatives</th>
<th>Exporter</th>
<th>Traders</th>
<th>Producers</th>
<th>Retailers</th>
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<td><strong>Who?</strong></td>
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If the consumer doesn’t know the history of the chocolate’s bar, he cannot appreciate high quality products. Customers are willing to pay an extra cost in order to have Food with an Impact.
FARMERS APP

Simplified Track & Trace is a Mobile Application that can be used by growers and cooperatives to track every single step in the process. The App uses Blockchain technology to notarize every declaration, the App lets actors of the supply chain share information and avoid dispute between parties.

SUPPORT FARMERS

The information can be used by the producers to share the story of chocolate From Bean to Bar. The information related to the growers and cooperative can be used also by the consumers to know the impact of their choices. The tracked cocoa can be sold with a mark-up that can be used to improve the Quality of Life of the Grower and their families.
REDUcing the information gap between farmers and consumers

01 02 03 04 05 06

Farmers  Cooperatives  Auditors  Exporters  Producers  Consumers

Supply-Chain

Farmers App  Track and Trace  Consumers App
01 DECENTRALIZED DIGITAL IDENTITY FOR FARMERS
Every Farmers and every cooperatives have a Digital Identity (Private Key that only Farmers or Coop Owns)

02 TRANSACTION VERIFICATIONS
Every Farmers certify their supplied cocoa quantity in an immutable way. Cooperatives verify the transactions and approve it.

03 PERSONAL TRANSACTION HISTORY
Every Farmers owns their transactions and can use it to report and prove the cocoa supplied.
01 BLOCKCHAIN AGNOSTIC APPROACH
A platform that can operate with several blockchain starting from Enterprise Network to Public platform

02 END TO END TRACEABILITY SOLUTIONS
With a digital food system, network participants can share data enabling full transparency.

03 COLLABORATIVE PLATFORM
Secure data-sharing between food chain actors eliminates the possibility for participants to move fraudulent foods unknowingly.

TRUSTY PLATFORM
SUPPORT

TRACEABILITY INFORMATIONS
Consumers can scan QR-Code to see provenance informations

SUPPORT COOPERATIVES
Consumers can support directly Cooperation and Sustainable Projects

FOLLOW IMPACT AND UPDATES
Consumers can follow impact and updates starting from the labels

Provenance Informations
Supports Projects
Thanks. Any Questions?

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