

PRESENTATION

Session: Traceability

- Title: Distributed ledger technologies in textile value chains
- Speaker: **Gesine Köppe,** ITA Academy GmbH, Germany

Presentations are available in the conference archive: <u>https://baumwollboerse.de/en/competencies/international-cotton-conference/speeches/</u>

Conference Organization

Faserinstitut Bremen e.V., Bremen, Germany. E-Mail: <u>conference@faserinstitut.de</u> Bremer Baumwollboerse, Bremen, Germany. E-Mail: <u>info@baumwollboerse.de</u> 36TH INTERNATIONAL **COTTON CONFERENCE BREMEN** Distributed ledger technologies in textile value chains Nils Finkeldei and Gesine Köppe, M.Sc

Agenda

- 1 Introduction in Distributed Ledger Technologies
- 2 State of the art solutions
- 3 Project TexCHAINge
- 4 Digital Capability Center Aachen

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1 Introduction in Distributed Ledger Technologies

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Textile manufacturing companies face many challenges regarding a holistic, fair and sustainable supply chain



Overview on textile value chain - Production of a cotton based pullover



Complex infrastructures and many individual actors pose a challenge for transparency and traceability in a global value chain



Example: Ensuring supply chain transparency within a global network

Process integrity using Distributed Ledger Technologies (DLT)



Properties of Distributed Ledger Technology (DLT)

A distributed ledger is a **decentralised database** that allows participants in a network to share read and write access.



Blockchain is a very well-known technology in the field of DLT

Blockchain is a shared, immutable network that facilitates the recording of transaction and tracking of assets.

Ledger

- A blockchain is a decentralised network without a central authority
 - 1. Validation of transactions
 - 2. Storage of a ledger copy



3. A blockchain ensures immutability and tamperproofness



Invalid sequence



Information about certificates, origin, labels are stored decentral

Traditional IT infrastructure

| 1 | Information storage in blockchain technology |
|---|--|
| | mornation storage in blockchain teenhology |

| | | | | _ |
|--------|---------|----------|-------|---|
| ID | Client | Date | Value | |
| 112-13 | A Corp. | 05/09/18 | 100 | |
| 109-18 | B Inc. | 06/05/18 | 250 | |
| 252-80 | C Group | 12/08/18 | 1000 | |
| 264-58 | D Ltd. | 09/07/18 | 50 | |
| 678-22 | E SE | 10/07/18 | 30 | |

| Previous Hash | Previous Hash | Previous Hash 🛛 👸 | |
|---------------|---------------|-------------------|---------|
| Transaction | Transaction | Transaction | |
| Кеу | Кеу | Кеу | 10 |
| Transaction | Transaction | Transaction | |
| Key | Key | Key | |
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|----|----|----|----|
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| ID | Supplier | Date | Value |
|--------|----------|----------|-------|
| 854-22 | B1 Corp. | 05/03/18 | 50 |
| 364-25 | C5 Inc. | 03/09/18 | 120 |
| 998-22 | A2 Inc. | 02/10/18 | 90 |
| 336-47 | G2 Corp. | 11/06/18 | 360 |
| 136-14 | F3 Ltd. | 09/01/18 | 800 |

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State of the art: Distributed Ledger Technologies in textile tracing

There are many initiatives, projects and consortiums growing these days
In this presentation some best practice examples are given as an inspiration

Trace and navigate through individual production stages

| Tracking code Enter code here or random code or brand Start | Track your | textile | | |
|---|-----------------|----------|---|-------|
| Enter code here or random code or brand Start | Tracking code | | | |
| or random code or brand Start | Enter code here | | | |
| | or random code | or brand | | Start |
| generate choose ~ | generate | choose | ~ | |



my-trace by Remei

BY QR CODE EACH TEXTILE CAN BE TRACED BACK TO ITS ORIGIN





Bergfreunde

Greenpeace Media







Gerry Weber

Coop Naturaline

Grüne Erde

Galeries Lafayette

fayette



Maas





Maloja



Visualization of transparent supply chains of different companies



3 Trace your products back to their origin

Tracing Products in Real-Time with Blockchain
With seedtrace, products can be traced back to their very origin, all
relevant information along the chain is collected and critical data
irreversibly stored on an open blockchain.

? Why Blockchain?

Since supply chains are fragmented and data is lost with each transaction, the right information is often unaccessible. Using seedtrace's lowemissions blockchain solution allows organizations to store the right information in an immutable and transparent way, ensuring that information about upstream events arrives downstream unaltered.





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Blockchain technology for luxury goods





Introduction of Lenzing with TextileGenesis™





Lenzing creates industrywide traceability with TextileGenesis™

Lenzing's flagship products TENCEL[™] and EcoVero[™] are one of the most sustainable and widely textile fibers in the fashion industry. TextileGenesis is created global traceability for Lenzing fibers across 20+ countries and a complex supply chain spanning thousands of suppliers. The scope covers full integration with 'forensic verification' (tracers) used by Lenzing

READ THE FULL STORY

Cotonea advices on the development of the Textile Trust platform

The first phase of the joint project between IBM, Kaya&Kato and Cotonea with the support of the German Federal Ministry for Economic Cooperation and Development has been completed. Textile manufacturer Cotonea is providing content expertise for the development of the blockchainbased platform Textile Trust. The aim is to ensure security and transparency in textile supply chains.





GIZ Blockchain Lab

The Lab taps into the transformative potential of blockchain and related technologies to achieve the Goals set out in the 2030 Agenda for Sustainable Development.

After assessing over 150 use cases for **blockchain technology** within the framework of sustainable development, the Lab has released its own set of the **15 most promising use cases** to guide further implementation of the technology.



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TASK FORCE

DIGITAL SUPPLY CHAIN MANAGEMENT

Development of an ecosystem for digital supply chain management in the German textile and clothing industry

The aim of the project is to prepare the **German textile and clothing industry** for the **constant technological progress of digitalization**, in particular networking. The project aims to strengthen the resilience of manufacturing companies and their service providers in order to meet the challenges of **global production**, **demographic change and ecological requirements** in the future.

The focus is on overcoming the **challenges of structural change** through **digitalization in supply chain management**. A digital ecosystem of different IoT approaches is being developed, which offers the German textile and clothing industry an incentive through coopetition.

One solution to these challenges is a **digital ecosystem** in which German companies organize their supplier management. Production data, delivery routes and contract documents can be exchanged in a **forgery-proof and encrypted manner** via **blockchain technology**. Incorrect information or delays are eliminated and planning reliability is increased. Lean documentation and efficient communication between trading partners logically lead to a more sustainable exchange, reduce media disruptions and increase quality in production.

WHICH ARE THE MAIN CHALLENGES FOR A TRANSPARENT SUPPLY CHAIN?



Lack of networking with suppliers and trading partners



Time and cost required to implement necessary technologies







Communication problems between the partners involved





Lack of human resources for more intensive work with partners

What we want to accomplish

Digital platform for:

- effective certification tracking of social and environmental standards.
- Initiate a blockchain-based supplier network to ensure the origin and authenticity of information exchanged between companies.





ALL PARTIES BENEFIT FROM TRANSPARENCY



Cooperation

A cooperation of all actors along the supply chain offers far greater chances of success.



Risks

Reduce risks and accelerate procurement processes through more comprehensive and faster visibility into status, compliance, and risk parameters.



Effort & Time

Supplying companies reduce the effort and time required to provide the evidence and thus improve their overall competitive position and future viability.



Costs

Through effective, widespread implementation the blockchain can generate cost benefits on all sides.

NO COMPETITION

Autonomy:

Each individual organization makes its own decisions about information provided and shared with business partners.

Neutrality:

FITTERNAND

The technological and organizational measures ensure the greatest possible independence from individual participants or third parties (including decentralized digital infrastructures based on blockchain technology)

Project "texCHAINge"

Development of an ecosystem for digital supply chain management in the German textile and clothing industry

Consortium members (2019-2022)



Ernsting's family

evan GmbH Blockchain-Plattform für eine vertrauensvolle digitale Zusammenarbeit von Unternehmen.

Ernstings Family GmbH & Co. KG

und nachhaltige Lieferkette.

Textileinzelhändler für eine transparente



KiK Textilien und Non-Food GmbH Seit 1994 erfolgreicher Grundversorger im Textildiscount und Non-Food Sortiment.



ITA Academy GmbH Berät und unterstützt die Industrie mit dem Digital Capability Center in Aachen bei der digitalen Transformation.



Bremer Baumwollbörse Vertritt den Rohstoff Baumwolle und damit einen wichtigen Teil der Lieferkette.

Peek[®]Cloppenburg



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OUR CENTER OFFERS A TEXTILE LEARNING FACTORY OF THE FUTURE



The factory is a central location to deliver capability building in a real-life demonstration and learning environment as well as a test base for piloting and scaling-up new digital solutions. We offer management workshops for managers and technicians across all industries who are responsible for operations. Our aim is to support your company during your digital transformation to increase productivity and efficiency.

Tracking of the original product using digital twin

Once the twin is created, it mimics all the steps the original takes.





Contact us!

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Gesine Köppe, M.Sc.

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Editor: ITA Academy GmbH

Director: Dipl.-Ing. Markus Beckmann Vaalserstr. 460, D-52074 Aachen
Tel.: 0241/ 80 49100
<u>hello@dcc-aachen.de</u>
www.ita-academy.de