Scientific Traceability

ICAC
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Agenda.

1. Background
   - Introduction to Oritain

2. The Issue
   - Textiles traceability

3. The Solution
   - Oritain’s unique services
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Background
- Introduction to Oritain
Oritain.

Oritain, formed in 2008, use forensic science to verify the origin of products.

Founded out of the University of Otago, by Professor Russel Frew, world-leading expert and advisor to the UN.

Our goal, to be the world’s most trusted company at scientifically verifying origin.

Offices in UK, Switzerland, USA, Brazil, Australia, New Zealand.
Who we work with.

To view more companies we partner with visit [www.orient.com/partners](http://www.orient.com/partners).
The issue.

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The Issue
• Textiles traceability
The supply chain dynamics in textiles.

- Passionate producers pushing to secure the best possible sales channels for their product
- Middle of supply chain “converters” who are often limited in how they can add value / point of difference
- Consumers demanding transparency, traceability and trust from brands and retailers
Importance of effective traceability.

**Traceability is a pre-requisite** for understanding environmental, ethical and social impact.

Supply Chain **Transparency and Traceability is a core priority for immediate implementation** – Global Fashion Agenda (2019).

Ethical and social – modern slavery
280+ signatories have signed up to the Uzbekistan Pledge, and are looking to follow a similar path for Turkmenistan and parts of China.

“Sustainable Sourcing at Scale” * and **verifying origin of cotton is crucial for** brands, retailers and consumers.

The traditional traceability problem in textiles.

Brand Commitment

Brand purchases raw material e.g. cotton or wool from a specific origin to support a **procurement commitment** or **brand program**

Blending & Substitution

At manufacturing different e.g. cotton of wool can be substituted or blended into the product

False Claim = Risk

The product is sold to consumers with a misrepresented claim
The solution.

- Oritain’s unique services
A cotton plant absorbs the *natural* elements from its growing environment.

Oritain identifies the differences to establish "origin fingerprints"
Oritain tracks the intrinsic properties of cotton and other fibres (what’s inside). The origin fingerprint of a product cannot be replicated. Oritain can test cotton at virtually any point of the supply chain to ensure transparency.

Traditional traceability requires the cotton or fibre to be sprayed or to have some form of paper/label based traceability systems. The accuracy of information is only as good as what’s claimed on the label or the applicator of the spray. Once these are removed or tampered with, traceability is lost.
How it works.

1. The product naturally absorbs different levels of chemical elements and isotopes. This gives the product its unique origin fingerprint.

2. Samples of the genuine product are collected and analysed to identify the origin fingerprint.

3. We store the fingerprint in the Ortitain database.

4. Samples from the market can be collected for testing.

5. Products from the market are tested to verify the claimed origin of the product.

6. On-pack certification and marketing opportunities can be leveraged for consumers.

We create unique profiles for our clients’ products and once this has been completed, we can audit their product at any stage in the supply chain.
Global cotton database.
Country of origin fingerprints.

- Origin uses statistics to interpret 1000’s of pieces of sample/analyte data into something that can be comprehended.

- Each data point represents a sample, points which are close together in a space have similar chemical fingerprints (related origins) while clusters of points which are far from each other represent differing chemical fingerprints of origin.

- A tested sample of *genuine* origin will lie in the area of *shaded space* occupied by the data for that reference origin. *Non-genuine* tested samples or blends reside in areas of *white space* outside of the genuine origin reference data.

*Model differentiating country of origins within a subset from the global cotton database.*
Blending example.

- When cotton is blended with another origin, the chemical fingerprint changes such that it becomes the average of the two blend components.

- This is represented in the plot as a tested sample which appears in ‘white space’, i.e. not definitive to one origin.

Model differentiating country of origins within a subset from the global cotton database.
Field capability.

Model differentiating regions and farms of origins within a subset from the global cotton database.
Objective scientific verification.

We can test product at any point in the supply chain.
Scientific traceability in textiles.

Brand purchases raw material e.g. cotton or wool from a specific origin to support a *procurement commitment* or *brand program*

**Brand Claim**

At manufacturing e.g. the origin of cotton or wool can be *authenticated* via an *objective scientific product test*

**In Market Audits**

Products can be sold to consumers with a *verified origin claim*

**Claims with Integrity**
Advantages.

No changes to the manufacturing process are required.

The scientific method we adopt has been referenced in literature for many years. We also have an established history of delivering for customers across a number of different product sectors.

Oritain measures what exists naturally in the product. The addition of foreign tracers such as spray or particles is not required.
Truth lies within

Traceability like no other

At Oritain, instead of relying on labels and paper trails to trace a product throughout the supply chain like many other traceability methods, we test the product itself. We've harnessed the powers of nature and science to provide businesses with a solution that helps them protect and enhance their reputation in market.
Questions.