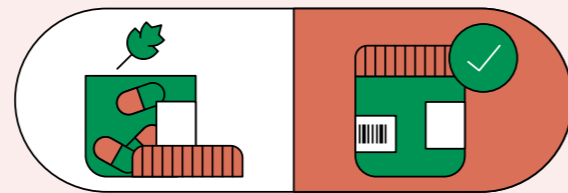# SUPPLY CHAIN SECURITY CONSIDERATIONS FOR CANNABIS-BASED PRODUCTS

Legalized cannabis-based products are here to stay in a variety of forms. Businesses in the sector therefore need to ensure that they have a streamlined process for the cultivation and distribution of their cannabis-based products ensuring that only legally compliant products enter the supply chain.

With the demand for legalized adult-use and medical cannabis-products on the rise, the need for strong software to track and monitor cannabis products as they pass through businesses is increasing. These software solutions aren't an optional "nice to have" for businesses but rather are mandatory, reflecting the highly regulated nature of the industry.
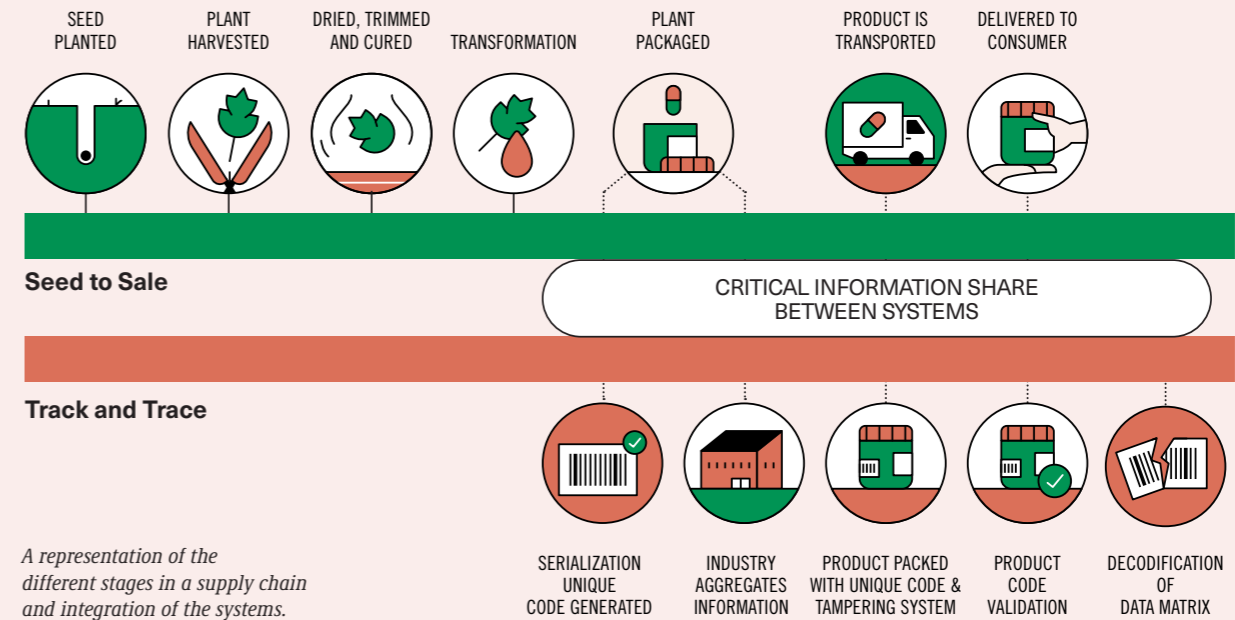
SEED TO SALE SOFTWARE AND TRACK AND TRACE SYSTEMS

As the world has welcomed the therapeutic benefits of cannabinoids for a variety of medical conditions, there has – perhaps inevitably - been an alarming increase of medicinal products whose identity, history or source has been falsified. These products usually contain substandard or falsified ingredients, or the wrong dosages of ingredients and therefore pose a clear threat to public health. EU Member States are obliged to take measures to prevent such falsified and illegal products entering into the EU territory and the supply chain.

Seed to Sale software enables businesses to track and record all activities relating the development of their cannabis products from cultivation through to sale and provides a complete audit trail which is reviewable and assessable by both the business itself, its clients and any relevant 3rd party regulators.

Track and trace systems are designed to provide for the verification of the authenticity and identification of all individual cannabis products moving throughout the supply chain, and should be implemented to provide evidence of tampering, if it occurs. Any actor in the supply chain who packages cannabis products must be a holder of a relevant manufacturing authorisation/licence, and as part of effective track and trace systems. A manufacturing authorisation holder who is not himself the original manufacturer of the product should only be permitted to remove, replace or cover those safety features under strict conditions.

Seed to Sale software and track and trace systems are therefore both required to ensure the integrity of cannabis products making their way into the legalised markets in the EU.

| SEED PLANTED | PLANT HARVESTED | DRIED, TRIMMED AND CURED | TRANSFORMATION | PLANT PACKAGED | PRODUCT IS TRANSPORTED | DELIVERED TO CONSUMER |

Seed to Sale

CRITICAL INFORMATION SHARE BETWEEN SYSTEMS

Track and Trace

A representation of the different stages in a supply chain and integration of the systems.

| SERIALIZATION UNIQUE CODE GENERATED | INDUSTRY AGGREGATES INFORMATION | PRODUCT PACKED WITH UNIQUE CODE & TAMPERING SYSTEM | PRODUCT CODE VALIDATION | DECODIFICATION OF DATA MATRIX |

Seed to Sale

A tracking process that records anything and everything happening to and around the cannabis growing, cultivating, processing and selling activites.

o Tracks inventory and monitors the various internal processes.
o Ensures that cannabis production is in accordance with the compliance regulations.
o Detailed record keeping.
o Multiple gnerations of batch tracing.
o Coordinates between systems, eliminating duplication of data and entries.

Track and Trace

A system that prevents the introduction into the legal distribution chain of falsified medicines for human use.

o Prevents the introduction into the legal distribution chain of falsified medicines for human use.
o Verify the authenticity of the medicine by assigning a unique code to the packaging of each drug (serialization) and identify the individual packages of the medicine.
o Allows two products never have the same combination of lot number, serial number & expiration date.
o Allows verifying if a package has been adulterated.
o Repository system - all the information related to the unique identifier. Verification done by the manufacturers, distributors and pharmacies.

CONCLUSION

The falsification of medicinal and wellness products is a global problem, requiring effective and enhanced international co-ordination and co-operation in order to ensure that anti-falsification strategies are effective. The European Commission and the individual member states of the EU should co-operate closely with and support ongoing transnational work in this area, so as to ensure that only legitimate, reliable cannabis products arrive into the market. In the meantime, seed-to-sale software solutions provide comfort to all participants in the industry as to the source and quality of cannabis products provided to consumers; implementation of additional track and trace systems - as already deployed in relation to other medicinal products - can add a further layer of traceability and consumer protection.

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