



cutting through complexity



Track and Trace Approaches in Tobacco

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KPMG and GS1 UK have co-authored a new report recommending industry best practice in implementing global track and trace for tobacco products



Robin Cartwright

- Robin is a partner in the KPMG Strategy Team
- He has specialised in measurement and management of illicit trade for major consumer goods companies
- Robin's team also advises on strategic and supply chain (track and trace) solutions across the tobacco, drinks and pharmaceuticals industries
- Robin joined KPMG following a career in the Security Service (MI5), the UK's domestic counter intelligence and counter espionage authority

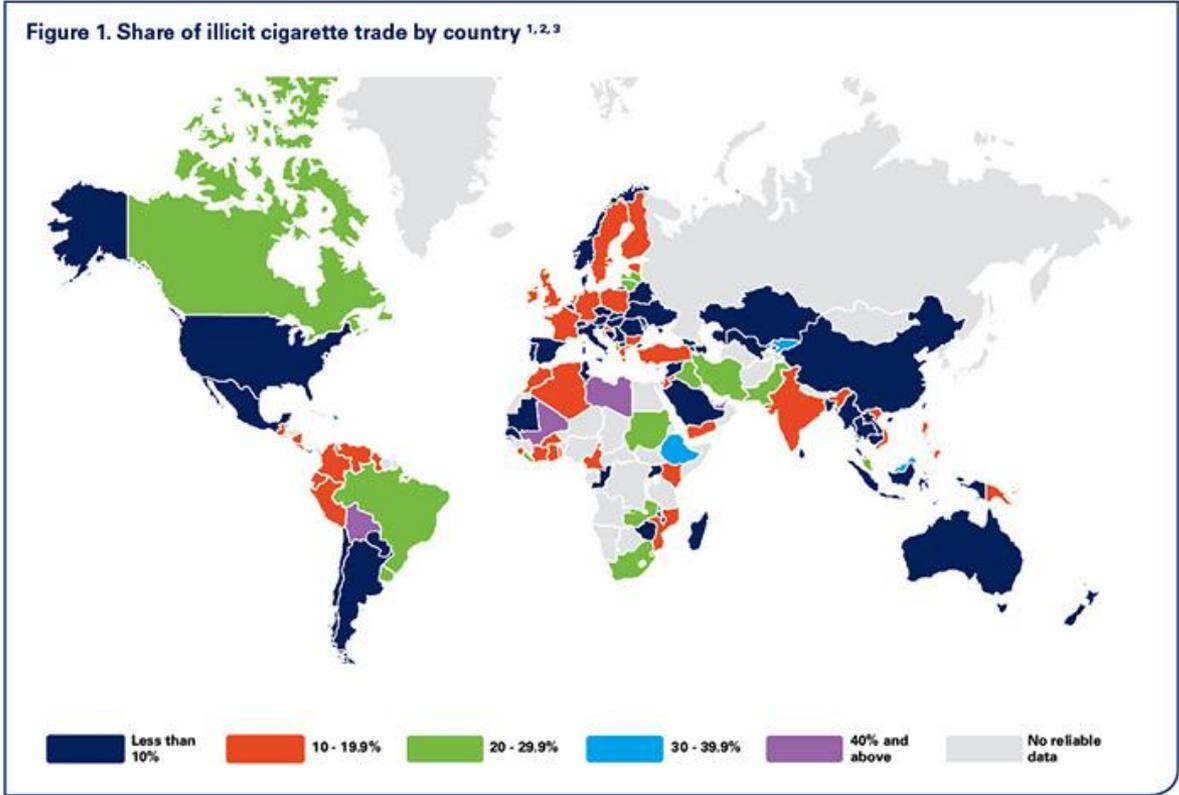


David Weatherby

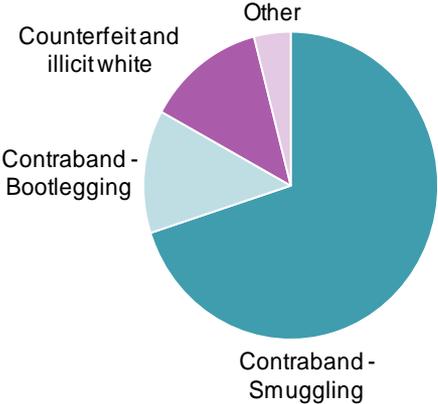
- David has more than 25 years experience of managing the development, support and marketing of information and communications based products and services
- David has in depth knowledge of GS1 standards and their application in supply chain and traceability systems
- David is the GS1 UK lead consultant on track and trace and has been involved in the development of the EPCIS track and trace standard since its beginning

Trade in illicit tobacco remains a global phenomenon - attractive to criminals and opportunists given the large financial incentive

Share of illicit cigarette trade by country



Estimated share of illicit trade in tobacco products, 2012



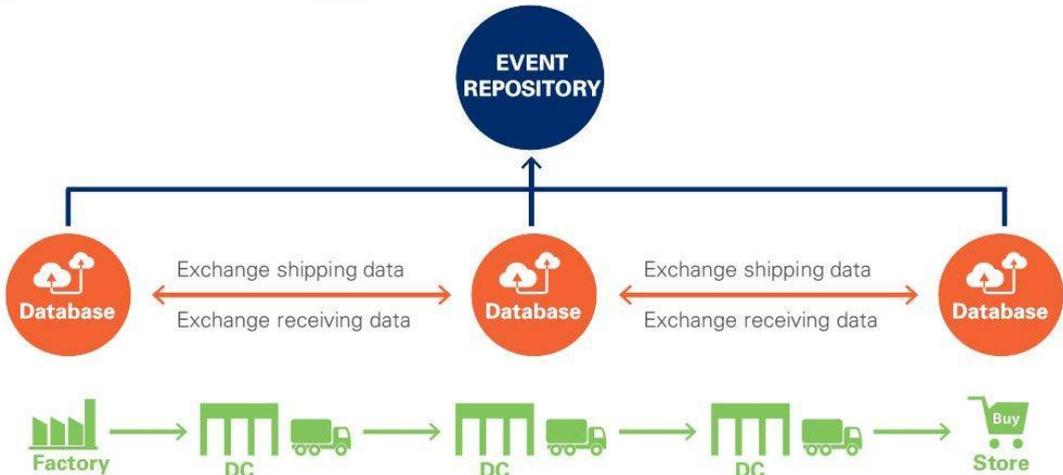
Illicit cigarette trade represents 10%-12% of the total global cigarette market— translating to a loss of government revenues of US\$40-50 billion

There are four main categories of illicit tobacco products: contraband (smuggling and bootlegging), counterfeit, illicit whites and unbranded tobacco

Track and trace technology offers significant capabilities in protecting the tobacco products' supply chain

Track and trace in the supply chain

Figure 4. Track and trace in the supply chain¹



| Manufacturer | | Distributor | | Retailer | |
|-----------------|--|----------------|--|--------------------|--|
| EVENT | DATA TO BE RECORDED | EVENT | DATA TO BE RECORDED | EVENT | DATA TO BE RECORDED |
| Create event | Product UIDs, time and location | Receive event | Case UIDs, ship to UID, ship from UID, time and location | Receive event | Case UIDs, ship to UID, ship from UID, time and location |
| Aggregate event | Case UIDs, product UIDs, time and location | Despatch event | Case UIDs, ship to UID, ship from UID, time and location | Disaggregate event | Case UIDs, product UIDs, time and location |
| Despatch event | Case UIDs, ship to UID, ship from UID, time and location | | | Sale event | Product UIDs, time and location |

Key UID = Unique Identifier
DC = Distribution Centre

The International Standards Organisation (ISO) defines track and trace as a:

“means of identifying every individual material good... in order to know where it has been (track) and where it is (trace) in the supply chain”

Tracking and tracing (T&T) requires supply chain partners to record events related to objects under their control

Track and trace systems are distinct from authentication systems and tax verification systems

WHO, through the Framework Convention on Tobacco Control (FCTC), negotiated a protocol that mandates the implementation of track and trace for tobacco products

FCTC Protocol Article 8 requirements

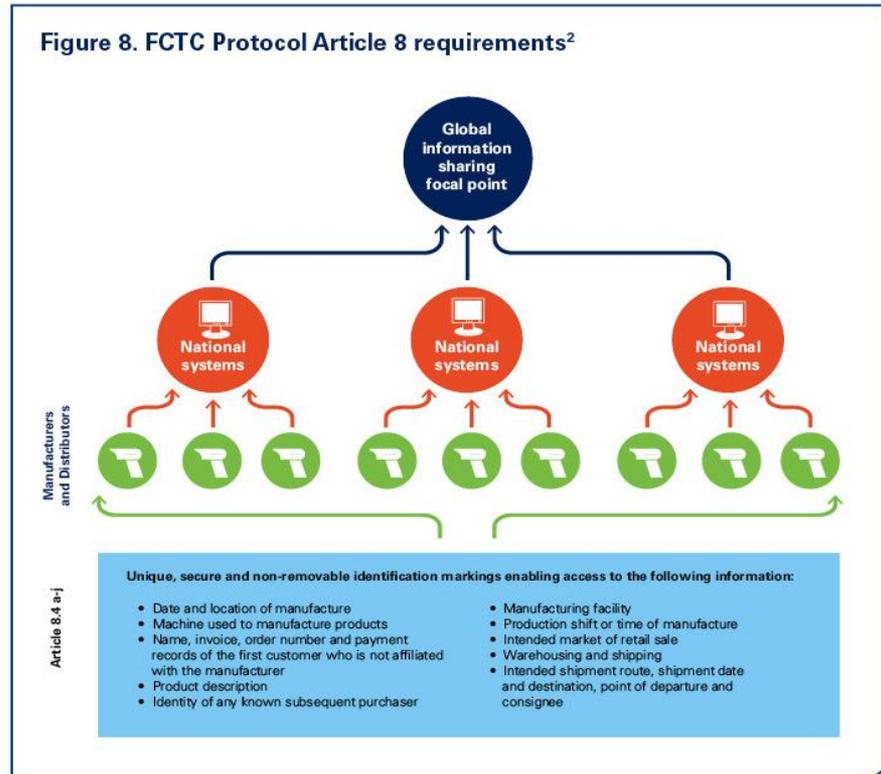
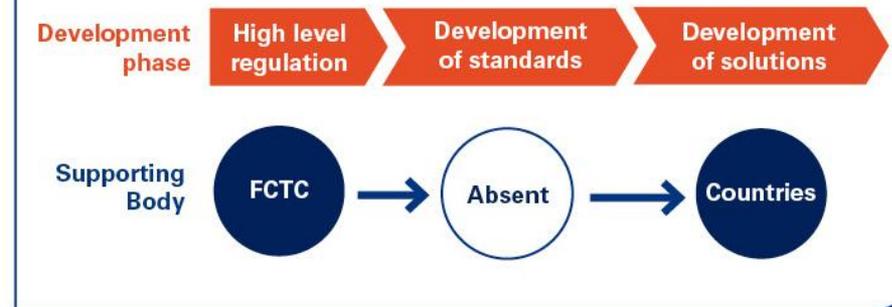


Figure 7. Phases of Protocol development and implementation



The Protocol mandates the implementation of track and trace for tobacco products, but stops short of establishing standards

Article 8 of the Protocol requires Parties to establish a T&T system for tobacco products, providing information which will be accessed through a global information focal sharing point.

It also requires unique, secure, and non-removable identification markings on all unit packets and packages of cigarettes and other tobacco products.

Recent developments in the European pharmaceutical industry highlight the benefits of open standards and the need for international and stakeholders cooperation

Background

- The pharmaceutical industry suffers significantly from counterfeits. Regulators in Europe adopted the European Falsified Medicines Directive (FMD), a pan-European safety and control measures to prevent falsified medicines from reaching patients



Approach

- The European Federation of Pharmaceutical Industries and Associations (EFPIA) lead the industry response to the legislation and to build an EU-wide coding, serialisation and verification system and worked closely with regulators and other industry organisations
- EFPIA uses open standards to enable flexibility at the country level and ensure interoperability at the European level as well as offering support and assistance to countries in adoption and implementation
- EFPIA encourages the use of existing business processes and IT infrastructure – reducing the number of systems, enhancing the reliability of data and reducing the cost of adoption

Key learnings

- Open standards are key to implementing an effective track and trace regime
- A dedicated industry-led forum can kick start the development of standards and support mechanisms
- International and stakeholder cooperation is required
- Track and trace systems should be integrated with existing business processes and IT infrastructure

The US pharmaceutical industry illustrates the important role open systems play in enabling systems' interoperability and efficient data exchange

Background

- The US had until recently adopted a state-by-state approach to tackle the growth in production and trade of falsified medicines. However, in November 2013 The US Government enacted the Drug Quality and Security Act (DQSA) to create a single federal approach, given the lack of interoperability between states' systems

Approach

- DQSA gave the Food and Drug Administration (FDA) one year to publish guidance containing standards for companies in the supply chain to exchange transaction information
- Although government-led, the FDA will consult with manufacturers, re-packagers, wholesalers, distributors, dispensers and other stakeholders
- The FDA guidelines are likely to comply with a form and format developed by a widely recognised international standards development organisation



Key learnings

- A T&T regime for tobacco products can only be effective if each state or national system is interoperable with others and can exchange data efficiently across borders. Governments should encourage the use of a common approach complying with widely recognised international standards
- Cooperation among all relevant stakeholders is required to develop an efficient track and track regime

Track and trace implementation in the timber industry shows that the lack of industry-wide standards can lead to the proliferation of proprietary systems hindering data exchange

Background

- There has been growing pressure in recent years for companies to track the origins of the timber they use to prove it has been legally and sustainably sourced
- Pressure from governments, along with EU timber regulation and the US Lacey Act, means that companies which use timber in their products are increasingly turning to track and trace systems to prove their compliance with laws

Approach

- There has been no attempt to produce industry-wide standards to track and trace timber, leading to many disjointed proprietary providers providing different systems and differing information sets
- Industry experts believe that the timber industry would benefit from the development of open standards. However, evidence suggests this development is unlikely given the vested commercial interests of the many private providers of systems in this sector

“ I think open standards are a great idea but probably unlikely given the vested commercial interests of the many private providers of these technologies ”

Sustainable timber track and trace expert

Key learnings

- The unavailability of industry-wide standards to track and trace can lead to the proliferation of proprietary systems which cannot adapt to common standards or facilitate data exchange
- Often, proprietary providers do not support the use of open standards due to their vested commercial interests



The Wi-Fi case study highlights that common standards can facilitate different providers entering the market which lead to lower the price and higher adoption

Background

- In 1985 the Federal Communications Commission (FCC), America's telecoms regulator, opened several bands of wireless spectrum encouraging a number of vendors of LAN wireless equipment to develop their own proprietary equipment operating in the unlicensed bands. However, equipment from one vendor could not 'talk to' equipment from another and the products had little success

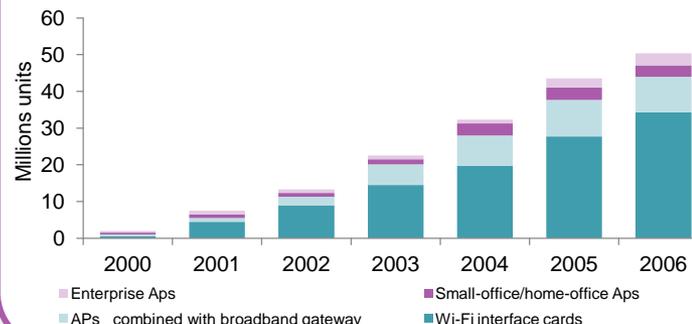
Approach

- Several vendors realised that with a common wireless standard, buyers would be more likely to adopt the technology as they were not 'locked in' to a particular vendor's products
- NCR Corp. initiated a process for developing standards through the Institute of Electrical and Electronics Engineers (IEEE)
- Prior to the agreement on standard, wireless connection hardware (access points) supported less than 2 Mb/s and sold for around \$1,500. Today, access points supporting 54Mb/s can be bought for less than \$50

Key learnings

- Common standards facilitated different providers entering the market which lead to lower prices and higher adoption rates

Worldwide Wi-Fi Shipments



Track and trace solutions are broadly served by two groups of providers – security printing companies and IT/data processing providers. Each’s heritage drives their very different capabilities...

| Comparisons of track and trace features by provider group | | |
|---|-----------------------------|------------------------------|
| Track and trace feature | Security printing companies | IT/data processing companies |
| Unique Identification Numbers | | |
| Marking technologies | | |
| Creation of parent-child relationships | | |
| Data to be captured | | |
| Recording of supply chain events | | |
| Data capture, transfer and exchange | | |
| Overall | | |

The IT/Data processing companies appear to be better placed to meet the Protocol requirements in some key respects

The IT/Data processing companies tend to make use of widely accepted standards and often design systems to interface with a range of applications, which would facilitate the sharing of track and trace data

Some security based systems may meet compliance requirements of the Protocol. However, their capabilities are weaker in terms of data capture, aggregation, transfer and exchange

Key: Very high High Medium Low Very low

Key conclusions

- **Governments should adopt tracking and tracing as part of a wider programme of anti-illicit trade measures.**
 - Tracking and tracing without enforcement, data exchange and international co-ordination will not be effective.
- **Open standards are key to the implementation of an effective track and trace regime:**
 - Ensure interoperability between systems – including between legacy and new systems;
 - Encourage greater levels of adoption and therefore superior supply chain coverage; and
 - Drive lower costs of implementation by being system and provider agnostic.
- **Co-operation is required between all stakeholders and countries**
- **It will be necessary to establish a dedicated forum involving all stakeholders**
- **Track and trace system needs to be flexible to cope with expected technological changes.**
- **Systems should enable practical adoption in smaller businesses within the supply chain.**
- **Governments should encourage competition in the market by conducting open procurement.**



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