



This document relates to item 5 of the provisional agenda.

Fifth Session of the Conference of the Parties to the
WHO Framework Convention on Tobacco Control, 12-17 November 2012, Seoul, South Korea

FCA BACKGROUNDER

**Tracking and Tracing (Article 8)
Draft protocol to eliminate illicit trade in tobacco products**

By

**John W. Colledge III
Consultant**

**Retired Supervisory Criminal Investigator
U.S. Customs Service and U.S. Department of Homeland Security**

The inclusion of any graphic or photograph in this document is not an endorsement of the product, manufacturer or distributor of the described technology.

Introduction

The original concept of tracking and tracing, and much of the draft Protocol to Eliminate Illicit Trade in Tobacco Products (commonly known as the ITP), was focused on the type of illicit trade that was most common in the 1990s, involving cigarettes produced by the major manufacturers. The scope of the illicit trade in tobacco products evolved through the early 2000s, with increased illegal manufacturing that included counterfeit merchandise, over-production from licensed manufacturers and inexpensive brands that were manufactured in licensed and unlicensed facilities. In addition, the illicit trade in other tobacco products such as roll-your-own tobacco, smokeless tobacco and cigars increased in some jurisdictions.

The application of tracking and tracing technology to tobacco products will not eliminate the illicit tobacco trade. Tracking and tracing is only effective in the control of tobacco products that are produced under strict controls, including production monitoring and the application of a unique marking system at the point of manufacture. It has limited, if any, applications in monitoring the production of tobacco products from illegal manufacturing facilities. A viable tracking and tracing regime is only one tool in controlling the illicit tobacco trade.

The current version of the draft ITP defines tracking and tracing as: “the systematic monitoring and re-creation by competent authorities or any other person acting on their behalf of the route or movement taken by items through the supply chain, as outlined in Article 8”.¹

There are two distinct components: tracking **and** tracing. They have unique functions.

Tracking can also be called “systematic monitoring”. It is proactive crime detection and prevention that involves actively monitoring, or providing the means to actively monitor, marked tobacco products in the supply chain. This process should ideally occur in real time, and also involves searching data for trade anomalies that would suggest illicit trade. Examples of systemic monitoring could include ongoing searches for new delivery addresses, addresses associated with past illicit tobacco trade, transactions involving suspended or revoked licensees and vessels or aircraft associated with smuggling.

Tracing occurs during or after enforcement actions, such as seizure or investigation, and involves reconstituting the path a shipment of products has taken, often to identify the point at which it was diverted into illegal channels. Tracing is also useful in identifying criminal networks and co-conspirators. Discussions, negotiations and papers have focused more attention on tracing.

The draft Protocol includes tracking and tracing timelines:

Cigarettes – “within a period of five years... of entry into force of the Protocol for that Party.”
Other tobacco products – “...within a period of ten years of entry into force of the Protocol for that Party.”²

Despite these timelines, many Parties and non-Parties have already procured tracking and tracing systems. Parties that have already done so should examine their current systems for compliance with the draft Protocol, their current and future business requirements, and consider making any appropriate changes in the next procurement action. This is particularly important for those Parties that have delegated their tracking and tracing functions to the tobacco industry.

The tobacco industry and its surrogates are aggressively marketing an industry-developed system, known as Codentify®.³ The security products industry is also marketing various systems. This paper will briefly describe those systems, and, more broadly, serve as an introduction to the implementation of tracking and tracing systems.

An Effective Tracking and Tracing System

A tracking and tracing system is much more than a unique identification mark. It is linked to a database, and involves systematically monitoring the supply chain from the point of manufacture, or importation, through the supply chain to retail purchase, export and other supply chain points, as required by a particular Party. That database would ideally be linked to customs import data and tax returns filed by manufacturers and importers of tobacco products. This interrelated system could be used to detect illicit activity through systemic monitoring of trade anomalies, and provide a means to trace tobacco products discovered or seized during the course of interdiction or investigative actions.

An effective tracking and tracing system should:

- Include monitoring of production, imports, exports, transportation, warehousing, retail sales and interface with licensing;
- Be a tool for revenue and customs inspectors and auditors, trade or commerce ministries, police and prosecutors;
- Interface with existing revenue collection systems, customs and trade ministry, and police databases;
- Include robust security features, including internal controls, to prevent unauthorized access or transactions.

Production monitoring is the counting of units produced on the manufacturing assembly line, using equipment belonging to a government controlled system. Using cigarettes as an example: each level of packaging – packs, cartons, master cases and pallets – would be uniquely marked. The various types of product packaging would be linked through the tracking and tracing system and related government databases.

The production volume is the basis for revenue collection in the country of manufacture, unless waived as with exported products. The tobacco manufacturer or importer must file tax documents with the appropriate revenue authorities, and submit the appropriate payments (or possibly request tax waivers for products intended for export). A tracking and tracing system could be integrated with the tax documents and used by auditors to reconcile tax payments, waivers or refunds to manufacturers or importers.

There are two common options for monitoring imported tobacco products. The process begins with unique identification markings applied at the point of manufacture in the country of origin or at the point of importation, ideally the former. Marking at the point of manufacture prevents the diversion of unmarked tobacco products into the supply chain. Invoices and related importation documents that are transmitted to customs provide a basis for collecting customs duties and taxes at the time of importation. These include the information related to the unique identification markings applied to the packaging, and would be linked to the tracking and tracing system.

Tobacco products may be sold or transported to a wholesaler or broker. The wholesaler or broker would account for the products through invoices and the applied unique identification markings. Wholesaler or broker transactions with retailers would also be linked through invoices and the unique identification markings applied to the product packaging.

Wholesaler, broker, and retail licensing could also be integrated into a tracking and tracing system. The benefits of such integration could include identifying attempts to sell tobacco products to unlicensed persons or to ship products to unlicensed premises. Verification of the processes could occur at any point in the supply chain, by revenue officers, customs, licensing regulators, or police.

Data encryption is an important feature of tracking and tracing systems. In addition to encrypting data contained in the unique identification marking, data transmitted to encrypted government databases from manufacturers, importers, wholesalers, brokers and retailers would also be encrypted to prevent unauthorized manipulation or interception.

Encryption is accomplished through the use of modern ciphers, based upon algorithms. The data can be decrypted by authorized revenue, customs, police or other government personnel possessing the appropriate key, which allows the text to be viewed in an unencrypted form.

Access to the data in the integrated database(s) would be controlled by position and function. For instance, customs personnel would have access to import data, and possibly export data, including data related to revenue collection. Revenue personnel would require access to production, import and export data, including revenue collection data. Revenue and customs inspections and audits could be linked to a system to identify inspection and audit targets, and perform periodic audits.

Authorities from trade or commerce ministries may require production, import and export data for statistical or licensing purposes. They should not have access to tax data related to those categories.

Police, that is the agency responsible for criminal investigations of smuggling, tax fraud and organized crime, would require access to all data, but would not have authority to conduct specific revenue functions related to collections and dispersals. Customs, revenue and police would have access to data that would allow for both tracking and tracing functions. Such monitoring could be automated or performed by dedicated inquiries, or both.

Tracking and tracing systems can also provide an anti-corruption feature, which is incorporated in enforcement agencies' evidence storage, disposition and destruction procedures. For example, if the seizure, disposal or destruction of tobacco products involves uniquely marked products from another Party, data collected from markings could be transmitted to that Party through the Global Information Sharing Point. Such uses would enhance anti-corruption programs through evidence accountability, and detect and deter internal theft of seized, marked, tobacco products.

Unique Identification Markings

The current draft Protocol text contains few technical comments regarding unique identification markings. It defines unique identification markings "...such as codes or stamps, "that are unique, secure and non-removable..."⁴ Unique identification markings are an essential component of a tracking and

tracing system. They are more sophisticated than a basic tax stamp and should include secure, digital technology that incorporates information required to track and trace tobacco products through the supply chain.

The data referenced in paragraph 4.2 of Article 8 that is part of unique identification markings should be encrypted to prevent unauthorized disclosure and maintain the integrity of the tracking and tracking system. Forgery of the unique identification mark would likely defraud a Party or Parties of revenue.



(Not to scale)

This example from Switzerland illustrates Codentify® applied to cigarettes. Data contained in a two-dimensional barcode can be encrypted, but the barcodes themselves may or may not include security features, such as security printing features to prevent forgery of the barcodes.

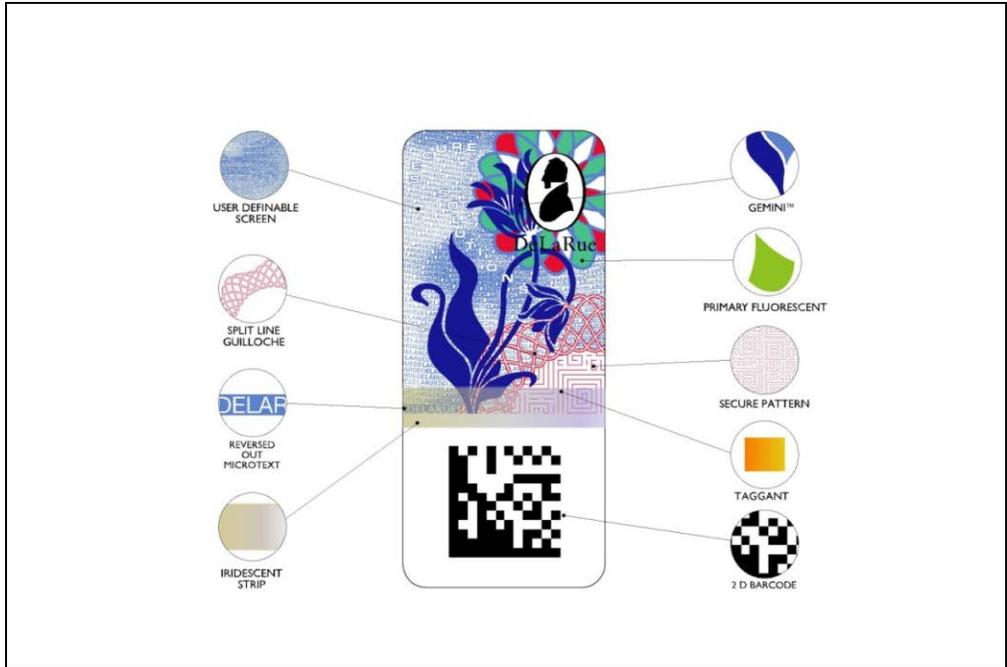
Tax stamps are printed on paper, plastic or some other material and applied to products by means of an adhesive or heat. Codes are typically printed directly to the packaging or container.



(Not to scale)

This is an example of an alpha-numeric code currently used by Altria in the United States and historically used globally by Philip Morris. Also shown in the photo is an example of a heat-applied tax stamp commonly used by many states in the United States; a variation is also used in Paraguay for imported cigarettes. The Paraguayan stamp does not contain any of the visible security features found in the Nevada example in this photograph.

The graphic below illustrates some of the many security features available in a modern tax stamp. The features in this example include security printing techniques, specialty inks and the addition of a two-dimensional barcode. The addition of the two-dimensional barcode creates a hybrid tax stamp that is a unique identifying mark that incorporates components of a tax stamp and the two-dimensional barcode.



© DeLaRue Printing

This table lists some of the security features available in a hybrid tax stamp. They are not unique to one vendor of security products.

DE LA RUE: THE ANATOMY OF A TAX STAMP

WHAT FEATURES CAN THE MARKET CHOOSE FROM?

LEVELS 1-4	SECURITY PRINT FEATURES			DIGITAL OFFERING
Level 1	Applied features: <ul style="list-style-type: none"> No applied feature 	Substrate: <ul style="list-style-type: none"> UV dull paper 	Printing and personalization: <ul style="list-style-type: none"> Offset Serial numbers UV features Covert and forensic features 	<ul style="list-style-type: none"> Order management system Consignment tracking
Level 2	Applied features: <ul style="list-style-type: none"> No applied feature 	Substrate: <ul style="list-style-type: none"> UV dull paper 	Printing and personalization: <ul style="list-style-type: none"> Offset Serial numbers UV features Covert and forensic features 	<ul style="list-style-type: none"> Order management system Consignment tracking Delivery alerts Basic reporting
Level 3	Applied features: <ul style="list-style-type: none"> Multiple overt, covert and forensic, including hologram. 	Substrate: <ul style="list-style-type: none"> UV dull paper Fibres 	Printing and personalization: <ul style="list-style-type: none"> Multiple printing processes Multiple overt, covert and forensic features 2D barcodes 	<ul style="list-style-type: none"> Order management system Track and trace to wholesale Mobile and fixed readers Batch reporting Electronic invoicing and payments Flash alerts Client implanted personalization systems
Level 4	Applied features: <ul style="list-style-type: none"> Multiple overt, covert and forensic, including hologram. 	Substrate: <ul style="list-style-type: none"> UV dull paper Fibres Candy fibres Threads 	Printing and personalization: <ul style="list-style-type: none"> Multiple printing processes Multiple overt, covert and forensic features 2D barcodes 	<ul style="list-style-type: none"> Order management system Track and trace to wholesale Supply chain authentication from factory to consumer Mobile and fixed readers Real time and batch reporting Electronic invoicing and payments Flash alerts Client implanted personalization systems

This table is a general overview of tax stamp products. Our tax stamp experts can help you tailor a solution to your specific needs.



(Not to scale)

This is an example of a hybrid tax stamp from the U.S. state of Massachusetts. This specimen stamp denotes “tax paid”, and contains a visible or overt unique visible alpha-numeric identifier and likely additional overt and covert security features. Other unique features of tax stamps include serialization, which can be overt – such as the unique number on the Massachusetts tax stamp – or covert, through specialty security inks, or incorporated into data encrypted in the two-dimensional barcode.

In its efforts to assert control over tracking and tracing, the tobacco industry frequently argues that tax stamps are obsolete and should be replaced by codes. One of its arguments is that stamps are easily forged, which could lead to losses of government revenue. Tax stamps and codes are susceptible to forgery. When securing anything, potential loss, theft, forgery or hacking can be mitigated through multiple layers of security, such as security printing techniques, specialty inks, encryption and other security features.

There are, however, no known reports of any compromises of stamp encryption systems. The tobacco industry has also argued that the tax stamp supply chain presents potential security issues related to theft or loss of stamps. Yet, there are no known examples of such thefts or losses. The application of lost or stolen hybrid tax stamps with unique identification features to unmarked tobacco products could be detected through revenue and customs inspections, or criminal investigations.

Unique identification markings for master cases and pallets can also include radio frequency identification (RFID) rather than a tax stamp or code. These fulfil the current definition of a unique identification marking. The value of a master case or pallet of cigarettes, and other large packages or pallets of other tobacco products, makes RFID technology a cost-effective option for those units. Rather than encoding data in a two-dimensional barcode, the same data can be encrypted in a device that interfaces with the unique markings on packs and cartons. There are industries that utilize re-usable pallets that contain imbedded RFID technology.

Interoperability between systems originating from common vendors is possible between systems sharing common features, such as two-dimensional barcodes. Interoperability would likely be bilateral or regional and is not dependent on the global information sharing point.

Data Fields

The data fields in paragraph 4.1 of Article 8 in the draft Protocol are minimum system requirements. Parties should regard them as the basis for a tracking and tracing system, but consider including other data that may be jurisdiction specific. Many government agencies already collect this data, and much more, in revenue, customs, and trade or commerce reporting requirements.

The tobacco industry and some Parties have argued that governments either do not collect this data, do not want to maintain the data, or both. That is incorrect. For instance, the contents (data fields) of customs entry documents are harmonized among members of the World Customs Organization (WCO).

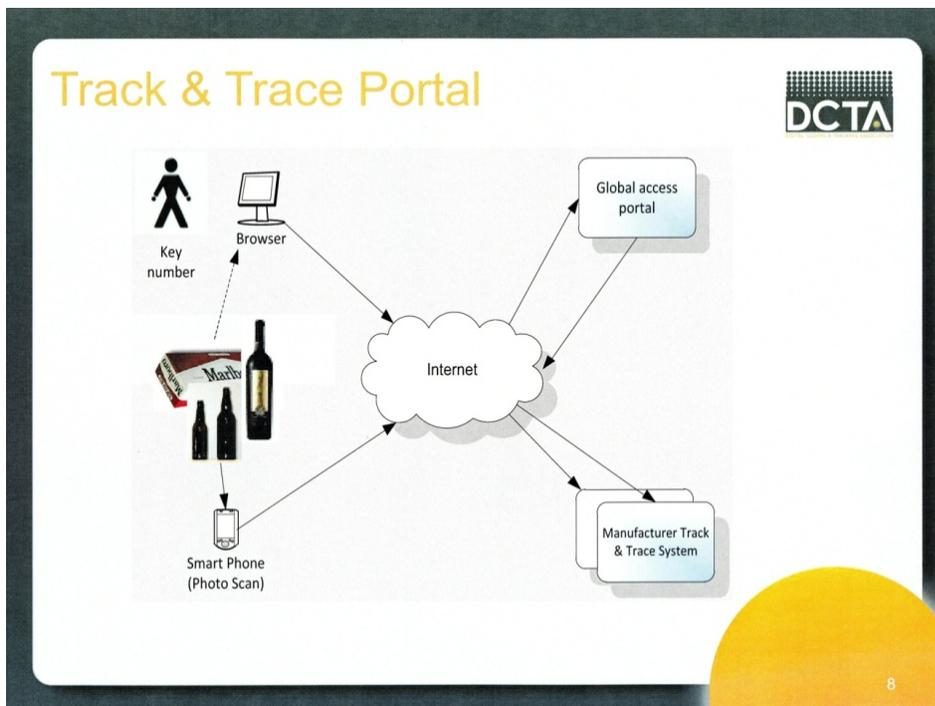
Those documents contain manufacturer, shipping, consignee, product description and classification, declared value, and points of contact.

Global Information Sharing Point

To be useful, tracking and tracing data collected in a country or region must be accessible by revenue and law enforcement authorities within the country or region collecting the data, but also simultaneously by global revenue and law enforcement partners. The draft Protocol created, but did not define a “global information sharing point” to be located at the FCTC Secretariat as a means to share the data.⁵

In the meantime, the tobacco industry is lobbying the industry version of a Global Information Sharing Point it is calling a “portal”. British American Tobacco (BAT), as a participant in the Digital Coding and Tracking Association (DCTA), presented its unique identification marking system, Codentify®, and the portal concept to the WCO in November 2011.⁶

The Global access portal appears to incorporate the concept of a global information sharing point. The slide also referred to a Manufacturer Track & Trace System, and suggested that the DCTA concept included tracking and tracing of alcoholic beverages.



The DCTA and Codentify® were also included in an INTERPOL media release on 17 July 2012, which said in part:

INTERPOL will also be working with the Digital Coding & Tracking Association – founded by British American Tobacco, Imperial Tobacco Group, Japan Tobacco International and Philip Morris International –, to develop and promote tracking and tracing standards in identifying

ways to make their supply chain control system, known as Codentify, accessible via the IGR. Through the Codentify system and utilizing internationally agreed standards, it is possible to track and trace the movement of products through the supply chain, and identify whether products are genuine or counterfeit.⁷

It is apparent that the tobacco industry and various surrogates continue to promote a tracking and tracing system that it controls, including the portal concept, even expanding the system to include alcoholic beverages, other commodities and a licensing interface.

The tobacco industry has aggressively marketed its concept of a global information sharing point to governments and inter-governmental organizations. Its portal concept includes tobacco industry control of information. This control provides the industry opportunities to monitor revenue and law enforcement access to data that it (the industry) controls. This monitoring could potentially compromise enforcement activities.

There are alternatives to the tobacco industry portal, including one from the United States. Although not a Party to the FCTC, the US provides an alternative example of a “global information sharing point” that has proven to be an effective law enforcement tool – the National Law Enforcement Telecommunications System (NLETS).⁸

NLETS is not a database; it is a switching system between established government networks that would allow national and regional governments to maintain the integrity of their respective revenue collection and protection programmes.

NLETS also functions as a link between mobile, hand-held, fingerprint readers and automated fingerprint identification systems (AFIS). Mobile fingerprint readers scan the fingerprints found at a crime scene with a small, hand-held device and compare them to fingerprints stored in AFIS. This application is similar to that of scanning unique identification marks on tobacco products. Information is transmitted through a NLETS-like switching system that routes the inquiry to the jurisdiction issuing the mark, and returns the results in real time to the hand-held device. Such a system could also authenticate the mark and, under certain circumstances, the product.

A NLETS-type model could also be programmed to pass or block various data requests based upon user access levels, multi-national or bilateral agreements. For instance, tax and nominal data is protected in many jurisdictions and may require bilateral sharing agreements such as tax treaties, mutual legal assistance agreements, customs mutual assistance agreements or other similar instruments.

Legislation

Selecting and implementing a tracking and tracing system will likely require a range of legislation related to authorization, procurement and system protection. Parties must review their existing criminal codes to ensure they include:

- Offenses that would protect unique identification markings from forgery and government-installed software from damage or destruction;
- Protection of government computer systems from hacking;

- Protection of government employees from obstruction of their duties related to the installation and monitoring of a tracking and tracing system;
- Applicable changes to revenue and customs administration that includes tracking and tracing, and
- Related enforcement agency responsibilities.

The Security Products Industry

The security products industry also became an active participant in the concept of tobacco-product tracking and tracing, and in the Protocol process, after it recognized potential markets for existing products, and the need to develop new products to service government business requirements. These opportunities include tracking and tracing applications for the collection and protection of duties and taxes on other products, such as alcoholic beverages, bottled water and other similar commodities.

The adoption of specific systems by Parties has led to some of those Parties becoming a knowing or inadvertent means to promote a particular vendor or technology. This promotion may or may not be transparent.

The Role of the Tobacco Industry

Throughout the 1990s, Philip Morris utilized a variation of the alpha-numeric code shown in the photograph on page 6 of this document. The major manufacturers all used similar systems to monitor their products in the supply chain.

In 2005, Philip Morris Products (PMP), S.A. filed a European Patent that was identified as *METHODS AND SYSTEMS FOR MARKING, TRACKING AND AUTHENTICATION OF PRODUCTS*. This system became known as Codentify®.⁹

According to the technical data in the patent documents, PMP was attempting to develop and patent a system it described as a marking, tracking and authentication tool for its products. This included production-monitoring features. Essentially, it wanted to police itself by controlling the monitoring system and other supply-chain data.

Many technical questions remain unanswered regarding Codentify®. The tobacco industry has claimed that Codentify® can be applied to imported products, alcoholic beverages and other merchandise, yet there are no known examples of such applications in service.

Among the four largest tobacco manufacturers, PM and British American Tobacco (BAT) have assumed leading roles in promoting Codentify®. The four major producers formed the Digital Coding and Tracking Association (DCTA) to collectively promote Codentify®. Meanwhile, smaller tobacco manufacturers are sceptical of using Codentify®, in part because it would require that they provide client and other business data to the major manufacturers or their surrogates, which could be exploited.

There are various tobacco industry surrogates, including FCTC Parties and security products companies, involved in the promotion and marketing of Codentify®. Some, such as DCTA, are transparent; others are

not. The phrase in Article 8, paragraph 13, of the draft Protocol, "...those representing the interests of the tobacco industry..." is of increasing importance in relation to tracking and tracing.

The insistence of the major tobacco manufacturers in maintaining control of production and other data in the system also presents a potential operational security threat to the integrity of government tax collection and protection. Any system that would include control of data access by the tobacco industry could potentially be compromised by the tobacco industry if it monitored enforcement-related inquiries.

Article 8, paragraph 12 of the draft Protocol specifically states: "Obligations assigned to a Party shall not be performed by or delegated to the tobacco industry." Article 8, paragraph 13 states: "Each Party shall ensure that its competent authorities, in participating in the tracking and tracing regime, interact with the tobacco industry and those representing the interests of the tobacco industry only to the extent strictly necessary in the implementation of this Article."

Tobacco industry cooperation will be required for the implementation of any government-controlled tracking and tracing system. For instance, a system that begins at the point of manufacture would require hardware components that are physically attached to manufacturing equipment on the manufacturer's premises, and communications with that hardware may require access to the manufacturer's data communications infrastructure. In some jurisdictions, legislation may be needed to ensure and safeguard this cooperation.

Funding of tracking and tracing systems

Article 8, paragraph 14 of the draft Protocol states: "Each Party may require the tobacco industry to bear any costs associated with that Party's obligations under this Article."

The tobacco industry is not the only potential source of financing for a tracking and tracing system. Excise tax increases could include funding mechanisms for these systems, and other revenue protection measures. Some jurisdictions have funded implementation through various funding mechanisms and agreements with security products industry vendors. Lastly, international financial organizations, such as the Inter-American Development Bank (IDB) or the International Monetary Fund (IMF), may be possible funding sources. The IDB has participated in at least one tracking and tracing-related project, while the IMF is addressing related taxation issues in several jurisdictions.

Conclusion

Tracking and tracing will not solve all illicit tobacco trade issues in a jurisdiction or region. If properly designed and implemented, systems will provide means to accurately collect and protect government revenues, mitigate the illicit trade of legally manufactured tobacco products, and allow enforcement agencies to concentrate on the illegal supply chain.

Article 8 of the draft Protocol provides basic minimum requirements for much of a tracking and tracing system. Parties must exercise caution and due diligence during the procurement process to ensure that system providers can fulfil their business requirements. Procurement of a tracking and tracing system should be based upon national or regional needs, including tobacco manufacturing, imports, exports,

and the threat of illicit trade, not upon the abilities of a security products marketing person. Procurement transparency is crucial to overall government and system integrity.

Procuring a tracking and tracing system requires the participation of all government agency stakeholders. System needs vary between government stakeholders. Lead agencies in this process should be revenue authorities, including customs, and the police, not health or trade ministries.

¹ World Health Organization, WHO Framework Convention on Tobacco Control, Draft protocol to eliminate illicit trade in tobacco products, FCTC/COP/INB-5/5, 4 April 2012, Geneva, Internet, available at: http://apps.who.int/gb/fctc/PDF/it5/FCTC_COP_INB-IT5_5-en.pdf and the files of the author, accessed : 28 September 2012, page 7.

² Ibid, page 12.

³ EP1719070, European Patent Office, Munich, 2012, Internet and the files of the author, available at: https://register.epo.org/espacenet/application;jsessionid=210D21333C2E7302A8E6B85D1AA3B434.RegisterPlus_prod_0?number=EP05792643&tab=main and in the files of the author, accessed: 28 September 2012.

⁴ Ibid, World Health Organization, Draft protocol to eliminate illicit trade in tobacco products, page 12.

⁵ Ibid, page 12.

⁶ Anderson, Dave, *Excellence in the Supply Chain*, British American Tobacco, 2010, Internet and the files of the author, available at: http://www.wcoomd.org/files/2.%20Event%20files/PDFs/USCC/Outcomes/Dave_Anderson.pdf and the files of the author, accessed: 29 September 2012.

⁷ INTERPOL, "INTERPOL Global Register unveiled at Google Ideas INFO summit," 17 July 2012. Lyon, Internet, available at: <http://www.interpol.int/News-and-media/News-media-releases/2012/PR057> and the files of the author, accessed: 30 September 2012.

⁸ Nlets, The International Justice & Public Safety Network, What We Do, Internet, <https://www.nlets.org/transactions>, and the files of the author, accessed: 29 September 2012.

⁹ EP1719070, European Patent Office.

This paper was commissioned by the FCA, but any opinions contained therein are the author's and may not represent the official position of the FCA.