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Every VAT/GST allows missing trader fraud.1 The fraud is simple, and can be simply prevented (with technology). The fraud arises when a business makes a purchase without paying VAT,2 collects VAT on an onward sale, and then “disappears” without remitting the tax.3 Missing trader fraud is common in high-value/low-volume goods sold across borders – computer chips and cell phones are the classic examples.4 But the fraud easily migrates when pursued. It operates well with goods as wide ranging as xenon bulbs,5 automobiles,6 and earth moving equipment.7

1 This statement is broad. It is intended to include all multi-stage consumption taxes – the standard European credit-invoice VAT, all similar VATs or GSTs (whether at the national level or the sub-national level as in the Canadian Harmonized Sales Tax [HST], Provincial Sales Tax [PST], or the Quebec Sales Tax [QST]), the Brazilian ICMS (Impostos Sobre Circulacao de Mercadorias e Prestacao de Servicos) and the Japanese Consumption Tax (CT).

2 There are a number of circumstances in every VAT system where standard business-to-business transactions occur without VAT. Most notable are transactions for sales of goods between Member States in the EU. Another common instance is a services transaction between two VAT jurisdictions. The standard result in these cases is for the purchasing business to self-assess the VAT due (called a reverse charge).


4 HOUSE OF LORDS, EUROPEAN UNION COMMITTEE, STOPPING THE CAROUSEL: MISSING TRADER FRAUD IN THE EU (REPORT WITH EVIDENCE) HL Paper 101(May 25, 2007) 7 (indicating that HMRC believes in 2006 that MTIC is predominantly a fraud in cell phones and computer chips). But see: Fabrizio Borselli, Pragmatic Policies to Tackle VAT Fraud in the European Union, Int. VAT Monitor (Sept./ Oct. 2008) at 333 (observing that data from the Office of National Statistics reported a significant reduction in MTIC fraud adjustments in the first quarters of 2006 corresponding with a rise in UK VAT receipts, but Borselli observes that this data only reflected efforts in the cell phone and computer chip market and that most likely MTIC had moved on to other markets undetected – and indeed it had as 2006 was the year when MTIC began in the EU CO2 markets, although it was not detected until 2010).

5 Violetta Krasnowska-Salustowicz & Wojciech Surmacz, VAT Spins, and We With It (VAT się kręci, a my z nim) NEWSWEEK POLSKA (Mar. 21, 2010) (indicating that the largest tax fraud in Poland involving xenon light bulbs for automobiles recorded sales in several months larger than the annual demand in the European Union) available at: http://www.newsweek.pl/artykuly/wydanie/1171/vat-sie-kreci--a-my-z-nim,55162,1 (in Polish).

6 Richard T. Ainsworth, Tackling VAT Fraud: Car Flipping and Computer Chips on a Carousel, 46 TNI 267 (Apr. 16, 2007) (discussing the largest GST fraud in Canada involving the sale of automobiles through tax exempt members of First Nations); Richard T. Ainsworth, Car Flipping in the UK: The VAT Fraud Marketplace and Certified Solutions, 47 TNI 1157 (Sept. 24, 2007) (discussing how the same fraud in automobiles was replicated in the UK but instead of using the GST exemption given to members of the First Nation, the UK fraudsters took advantage of the VAT exemption provided to handicapped individuals and applying it in sales of high end auto like Lamborghini, Ferrari and Maserati).

MTIC and Carousel Fraud

In the European Union missing trader fraud is commonly known as missing trader intra-Community (MTIC) fraud, because an intra-Community goods transaction (a business-to-business sale between Member States) is the initial sale. This sale is zero-rated, thus the purchase is without VAT. If the same goods participate in the same fraud multiple times, making multiple trips across community borders then the goods appear to be on a carousel, hence the name carousel fraud. For example, in a widely reported case a twenty-one year old appeared to be selling 10% of the world supply in a particular kind of computer chip, when in fact he had only one box of chips going round-and-round in UK-Irish trade.

Missing Trader Fraud in Services

Recently missing trader fraud has morphed into services. Fraudsters engaged in this variant exploit an oversimplification in the definition of “taxable supply” found in all VAT/GST regimes. It is common to define goods as tangible property, and then to define services as everything else. However, not all services are the same – some are readily re-sold like goods rather than immediately consumed like services. As a result, this variant of the fraud can occur between Argentina and Chile, or Nigeria and New Zealand, or Australia and France.

Because missing trader fraud relies on the re-sale of a supply purchased without VAT, and because most of the early frauds were detected in goods, it is common to assume that this fraud is confined to goods. However, in services that are bought and sold like goods (tradable services) missing trader fraud is flourishing. It has been undetected for years.

Services-based missing trader fraud is common in CO2 permits, VoIP, mobile minutes, cloud computing and more. The great difficulty in services-based missing trader fraud is that the commodity evaporates on use. It is one thing for an auditor to find a box of computer chips riding a carousel, it is quite another for an auditor to find VoIP termination minutes that have been sold, re-sold before being fully used.

Thus, while it appears that there are two classes of taxable supplies (goods and services), there are in fact three – goods, tradable services and consumed services. The first two of these are susceptible to missing trader fraud.

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10 For example, the EU VAT is imposed on taxable transactions. Taxable transactions are either the supply of goods (the transfer of the right to dispose of tangible property as owner), or the supply of services (any transaction which does not constitute a supply of goods). Art. 5(1), Sixth EC VAT Directive/ Art. 14(1), Council Directive 2006/112/EC and Art. 6(1) 1st subpara., Sixth EC VAT Directive/ Art. 24(1), Council Directive 2006/112/EC.
Size of the Fraud

Missing trader frauds are so large in the EU that they have distorted national trade statistics in the UK. They are largest single frauds uncovered in jurisdictions as wide ranging as Canada, Italy, and Poland. The Russian mob has long been suspected of being involved in missing trader fraud. The Ndrangheta mafia (a crime syndicate from the toe of the Italian boot) uses missing trader frauds to launder money (at a profit) through the Italian telecommunications system. Although it is possible to trace missing trader funds and fraudsters from Berlin (Germany), to Dubai (UAE), and on to Lahore (Pakistan), there is no direct proof that missing trader fraud is a terrorist funding source. Some however, are suspicious about the ultimate destination of the funds.

Accurate numbers are not available either for a single Member State, or for the EU as a whole. There are certainly no reliable estimates of global losses, or losses suffered in non-EU jurisdictions. In 2006 the UK estimated that it had experienced

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14 Supra note 5.
15 Ashley Seager & Ian Cobain, Carousel fraud: Bogus deals keep Customs in a spin: Smart criminals stay ahead of investigators Russian mafia and IRA linked to swindles, Guardian (May 9, 2006) available at: http://www.guardian.co.uk/uk/2006/may/09/ukcrime.ashleyseager
16 Stacy Meightry & Sabrina Cohen, Billionaire Is Sought In Sweeping Fraud Probe, WSJ at B5 (Feb. 24, 2010); Richard T. Ainsworth, The Italian Job – Voice Over Internet Protocol MTIC Fraud in Italy, 58 TNI 721 (May 31, 2010).
17 Reports on the terrorist link in the press can be found generally, but a recent and older report gives some sense of the level of recognition. Paul Fletcher, Round and Round – From Rags to Riches, COMMERCIAL FINANCE TODAY (March 18, 2009) available at: http://www.commercialfinancetoday.co.uk/2009/03/18/mtic-carousel-fraud/; Alan Travis & Ashley Seager, Reid Wants Europe to Fight VAT Fraud Linked to Terror Funds, The Guardian (October 26, 2006) available at: http://www.guardian.co.uk/politics/2006/oct/26/eu.terrorism;
MTIC losses of between £2.98 and £4.47 billion.\textsuperscript{19} The German government had similar estimates.\textsuperscript{20}

During the same 2006 period Europol’s “best estimate” for MTIC fraud in the EU as a whole was €23 billion.\textsuperscript{21} If we assume that this base-line estimate was accurate in 2006, then it is still accurate in 2010. The reason is simple – one of the results of domestic enforcement actions that was clearly set out by Dr. Cheetham at the House of Lords in 2006 is that its adoption of the most popular “solution” (a product-specific reverse charge) by less than all VAT jurisdictions is a transformative not a curative event. The country adopting the standard solution becomes a base-camp for VAT-free supplies that can be sent into the other jurisdictions.\textsuperscript{22} Overall the fraud is not reduced; it maintains the same volumes or probably increases in scope.\textsuperscript{23} As a result, when Europol estimated in 2009 that there was an additional €5 billion in CO2 MTIC fraud (in the EU alone) we should take this figure as an additional amount of MTIC that should be aggregated into earlier estimates. Thus, MTIC in the EU has probably risen to at least €28 billion.\textsuperscript{24}

Reckon LLP completed a study of the VAT tax gap for the EU Commission in 2009 (also based on 2006 data). It indicated that the two most significant research efforts to measure MTIC fraud were those of HMRC (mentioned above) and another study by

\begin{itemize}
  \item \textsuperscript{19} H.M. Treasury, 2006 PRE-BUDGET REPORT: INVESTING IN BRITAIN’S POTENTIAL – BUILDING OUR LONG TERM FUTURE 126 (Dec. 2006) Cm 6984, available at: http://www.hm-treasury.gov.k/media/5CC/43/pbr06_completerepor t_1439.pdf (indicating that “… attempted MTIC fraud was between 3.5 billion pounds and 4.75 billion pounds in 2005-06; with an estimated negative impact on VAT receipts during the year of between 2 billion pounds [or 2.98 billion euro] and 3 billion pounds [or 4.47 billion euro].”) \textit{See also:} H.M. Revenue & Customs, MEASURING INDIRECT TAX LOSSES – 2006 6 & 21-25 (Dec. 2006) available at: http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true& _pageLabel=page_library_ConsultationDocuments&propertyType=document&columns=1&id=HMCE_PROD1_0264
  \item \textsuperscript{20} European Commission, Communication of the Commission to the Council in accordance with Article 27(3) of Directive 77/388/EEC, COM(2006) 404 final at 4 (indicating that German estimates of 2006 losses to all types of VAT fraud are 2% of total VAT receipts – or 8 to 10 billion euro – with roughly one third attributable to missing trader fraud) available at http://ec.europa.eu/taxation_customs/resources/documents/COM(2006)404_en.pdf; Euro2day, \textit{ECOFIN EU Presidency’s Steinbrueck says Reverse Charge VAT on Agenda for April}, (Jan. 30, 2007) available at http://www.euro2day.gr/articlesfna/27924825/ (“German finance minister Peer Steinbrueck said … VAT fraud costs €8-10 billion in Germany annually …”).
  \item \textsuperscript{21} Europol Press release, \textit{Experts discuss ‘Missing Trader Inter-Community Fraud}, (Dec. 13, 2006) available at: http://www.europol.europa.eu/index.asp?page=news&news=pr061213.htm (reporting on meeting at Europol of 40 experts from 22 E.U countries gathered to discuss ways to fight MTIC fraud where a report from Eurocanet, the European Commission sponsored task- force on fraud provided figures that MTIC fraud cost the EU €23 billion between June 2005 and June 2006).
  \item \textsuperscript{22} Richard T. Ainsworth, \textit{CO2 MTIC Fraud – Technologically Exploiting the EU VAT (Again)}, 57 TNI 357, 370-72 & Figure 3 (Jan. 25, 2009).
  \item \textsuperscript{23} Fraud will increase when the supply is made in goods. The reason is that the fraudster’s distribution lines are shortened. Instead of transporting goods to back and forth to Dubai (a 2 or 3 day journey), the goods can be circulated within the EU (transit time of 1 day or less). The carousel simply moves faster.
\end{itemize}
the Belgian Finance Ministry. The Belgian estimates (which also do not include CO2 MTIC) are somewhat lower than the Europol estimate for the entire EU (€19.9 billion as compared with €23 billion). However, the Belgian estimate for MTIC in the UK was considerably higher than the UK’s own estimate of losses (€8.85 billion as compared with the UK’s range of between £2.98 and £4.47). Reckon cannot explain the differences.

The only conclusion that can be drawn about the size of the MTIC problem in the EU is that current estimates are highly speculative, and they clearly miss entire classes of fraudulent transactions. EU losses are enormous. However, because VoIP and other tradable services types of missing trader fraud are not confined to the EU there is much more to measure, and it will take considerable international cooperation to combat it.

As a result, the issues raised here impact OECD discussion on harmonizing VAT/GST rules in services and intangibles, just as much as they impact EU efforts to combat services and intangibles MTIC in Europe. They should also be a key policy concern in the US, if there is a sustained effort to design and implement a US VAT.

Solutions - Technology

MTIC is a technology-intensive fraud. Thus, it only stands to reason that technology will offer solutions, probably the best solutions.

A transaction in tradable services can be completed in minutes, and the theft of the VAT can occur in the next few minutes. The return on which the trade is reported may easily be due several months into the future. If the intent is to commit fraud the funds will pass at lightning speed through a series of domestic and foreign banks (Dubai, 25 RECKON LLP, STUDY TO QUANTIFY AND ANALYZE THE VAT GAP IN THE EU-25 MEMBER STATES, Sept. 21, 2009, (analysis based on 2006 data for all EU Member States, except Cyprus) available at: http://www.reckon.co.uk/item/cb5873cb.
26 Id., at ¶ 383.
29 Aline Robert, La fraude a la TVA du CO2 se revele gigantesque, La Tribune 22 (Dec. 16, 2009) (in French, original and translation on file with author) (discussing that the average time is 15 minutes for a MTIC transaction to be closed out on the BlueNext exchange in Paris.)
India, Hong Kong, Pakistan, China and Russia are common transit points). When a withdrawal is made (in cash) on the other side of the world the stolen VAT becomes impossible to recover, and the supply that supported the fraud has evaporated.\textsuperscript{30} The only thing that slows down missing trader fraud down is the nature of the supply — goods must be delivered;\textsuperscript{31} services and intangibles simply need to be made available.

The three leading technology-based solutions will be considered – the real time VAT (RTvat),\textsuperscript{32} the VAT Locator Number (VLN) system,\textsuperscript{33} and the Digital VAT (D-VAT).\textsuperscript{34} There are important differences among these solutions, but in general terms, the RTvat focuses on securing that tax, the VLN focuses on the securely tracing the supply, and the D-VAT certifies that the correct tax is charged, collected, and remitted. RTvat is a mandatory system for all transactions. In the EU it would need to be adopted throughout the Community. The VLN is also mandatory, but it can be adopted by a single jurisdiction. The D-VAT is a voluntary system, but it would need to be made mandatory in market segments where fraud is suspected (cell phones, computer chips, Voice over IP or CO2 permits for example).

**RTvat**

The RTvat essentially moves the point of taxation from the invoice date to the settlement date.\textsuperscript{35} In addition, the RTvat is a cash-basis system that mandates debit cards and wire transfers of tax amounts in real-time directly to the tax authorities when payments are made.\textsuperscript{36} The key to the RTvat (this proposal has been made for the EU, and considers MTIC in goods, not tradable services) is the network of twenty-seven identical servers that it establishes which are linked together as communication and fund transfer centers.

The proposal requires that each Member State establish a national server system that is separately owned and operated by a national Public/ Private Partnership. The private sector participants will fund the investment and operating costs, and the tax

\textsuperscript{30} FINANCIAL ACTION TASK FORCE, Laundering the Proceeds of VAT Carousel Fraud (Feb. 23, 2007) (see for example the £36m UK carousel, based in southern Spain which had Swiss bank accounts, but where funds are eventually withdrawn in cash in Hong Kong, and others funds invested in Spanish real estate are later old and re-invested in Las Vegas after passing through the Commonwealth of Dominica and Gibraltar).

\textsuperscript{31} Teleos plc & Others v. Commissioner of Customs and Excise. Case C-409/04, at 42 (determining that goods must “physically [leave] the territory of the Member State of supply” to qualify as an intra-community supply).

\textsuperscript{32} Chris Williams, RTvat: Outline of proposed real-time VAT collection system to increase efficiency of collection, maximize revenue, minimize fraud and reduce administrative burden on business, (Dec. 5, 2009) available at: http://www.rtvat.eu/.

\textsuperscript{33} HOUSE OF LORDS, EUROPEAN UNION COMMITTEE, STOPPING THE CAROUSEL: MISSING TRADER FRAUD IN THE EU (REPORT WITH EVIDENCE) HL Paper 101(May 25, 2007) 7 (testimony of Dr. Michael Cheetham setting out the VLN proposal).

\textsuperscript{34} Richard T. Ainsworth, Carousel Fraud in the EU – A Digital VAT Solution, 42 TNI 443 (May 1, 2006) (setting out a fully digital solution for MTIC fraud)

\textsuperscript{35} RTvat, Information Brochure – An Introduction to a real-time solution for Improving the EU VAT system (January 3, 2009) at 14, available at: http://www.rtvat.eu/.

\textsuperscript{36} Id., at 13
administration would share in any surplus from the revenue stream generated through transaction fees.37 All VAT payments would be required to be made through this system.

The RTvat changes the EU VAT from a withholding to a direct payment system. Sellers (other than those selling to consumers) will never hold the buyer’s VAT.38 Instead of requiring sellers to collect and remit VAT, the RTvat uses electronic payments to remove the VAT component from a buyer’s payment, and then remits this amount to the tax authority in real-time. Thus, if business X purchases goods from business Y for 100 cu39 in a jurisdiction where the VAT rate is 20%, X will pay 120. But instead of requiring the seller to collect, hold and remit 20 in VAT, the RTvat uses the automated payment system to send this amount directly the tax authority. The seller will receive 100 (and notification that 20 was sent to the tax authority).

Although the RTvat indicates that this system has not been looked at before,40 VAT withholding (and automated VAT withholding) systems have been in place in Latin American countries for a number of years.41 A similar (pre-digital) system was proposed for the EU called the PVAT.42

For example, in the Dominican Republic 30% of the VAT reported on all invoices paid with a credit card is withheld by the credit card company and remitted to the tax authority (if VAT is not listed on the invoice the withholding is 100%). The seller is notified of a VAT payment made on his behalf.43 Puerto Rico’s sales tax is contemplating the same withholding regime for the full amount of the tax due on all invoices paid with credit or debit cards.44

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37 Williams, RTvat, supra, note 32 at 7.
38 Business-to-consumer (B2C) transactions would be handled in the traditional manner, with VAT held by the seller, and remitted to the tax authority in batches (not transactionally in real-time).
39 All examples are in currency units.
40 Williams, RTvat, supra, note 32 at 7.
41 Mexico, Ecuador, Chile, Argentina, Colombia and Venezuela have systems like this.
42 See also the Prepaid VAT (PVAT) proposal that requires vendors to collect VAT on all sales, domestic and interstate, with the sole exception of interstate sales where the buyer prepays the VAT to the state of destination – and provides proof of this payment to the vendor. Proof would be a tax deposit receipt. Satya Poddar & Eric Hutton, Zero-rating of Interstate Sales Under a Sub-national VAT: A New Approach, in NATIONAL TAX ASSOCIATION PROCEEDINGS: NINETY-FOURTH ANNUAL CONFERENCE (2001) 200-07.
43 Decree (DR) 140-98; Tax Code (DR) 11-92; General Regulations (DR) 02-05 & 08-05.

Collection and payment procedures
Sales tax revenues are collected on a monthly basis by First Data Corp., a provider of electronic commerce and payment solutions for businesses and consumers; Banco Popular de Puerto Rico; or any other authorized collector designated by the Secretary of the Treasury. Merchants have until the 10th of every month to remit sales tax collections for the prior month. Collectors transfer sales tax revenues on a daily basis to a bridge account at Banco Popular in the name of the Treasury Department, as paying/receiving agent. Once the funds are deposited in the Banco Popular bridge account, Banco Popular then transfers on a daily basis (with a two-day delay) to the trustee collections from the entire 5.5% sales and use tax until the base amount has been deposited in the DSTF, and thereafter to the Treasury Department all subsequent sales tax collections until the
The RTvat proposal anticipates a staged roll-out, with the first stage confined to domestic transactions in a Member State and a second stage where intra-community transactions are handled. Only during the second stage will MTIC be eliminated. This stage requires a single VAT registration across the EU. MTIC is cut-off with the RTvat because a business buyer will always pay domestic VAT on purchases (even purchases made across a Community border). In the example used above, 100 will be remitted to the cross-border seller, and 20 will be sent directly to the buyer’s jurisdiction. There will be no reverse charge. Cross-border sales will be taxed at the applicable rate in the buyer’s jurisdiction, not zero-rated by the seller in expectation that the buyer will perform a reverse charge.

The RTvat will impact businesses that take advantage of cash flow opportunities under the current system. It requires the immediate payment of VAT on value added at each stage of production, and for some businesses this will mean that they will finance the VAT (this is particularly the case in a down economy where inventory is purchased but not easily re-sold). The RTvat will also not resolve B2C frauds, like for example, the use of automated sales suppression technology at the point of sale to skim cash sales (Zappers and phantom-ware applications). Only the D-VAT (of the three proposals considered here) could provide this kind of comprehensive fraud prevention.

**VLN**

The VAT Locator Number system is the simplest of the three technology solutions to adopt. It is the least disruptive to the current VAT system. Law changes are minimal. It was formulated and proposed by Dr. Michael Cheetham at the House of Lords hearings, May 25, 2007. The VLN solution is very targeted. It is only looking at MTIC, and how to prevent it.

The most significant policy change made by the VLN proposal is the denial of a buyer’s input credit if a seller pays VAT on an invoice with an invalid VLN (or no VLN at all). The most significant procedural change is that businesses would need to secure a VLN (when selling supplies) or validate an opposing trader’s VLN (when purchasing supplies). In most cases accountancy software platforms would make automated requests for VLNs from the central (government) computer system, and make automatic validation requests in the same manner. Each link in the commercial chain would be given a number, and the numerical sequence would follow the goods (or services) from initial manufacture through to final consumption. A back-up system where VLNs could be secured through an internet web site or a call center would be available.

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department has received its share (2.75%/5.5%) of the collections received to date in the fiscal year. 


46 *Supra*, note 33.

47 Dr. Michaels Cheetham, *Personal e-mail communication* (April 25, 2010) (on file with author).
The VLN system requires the seller on each transaction to secure and print on the invoice the encrypted VLN. The number would be unique to this transaction (based on the essential data elements of the invoice, and prior related VLNs from transactions up the commercial chain). The VLN number will be attached to the invoice, either numerically or as a bar code that can be scanned and read with an optical reader. The advantage of a bar code and optical reader capabilities is that a trader can quickly scan the VLN bar code into a national database to verify the VLN.

A similar fraud prevention system is in place in Brazil, where it has proven to be highly reliable. In Brazil invoices receive a digital bar code at the inter-state border (from a federal computer feed). The bar code is used to validate the invoice and the physical transit of the goods.

Two examples of the VLN may be helpful. The first involves a standard cross-border sale within the EU. The second explains what happens if a trader sells without a VLN. Importantly, the response of the next trader in line to the lack of a VLN is to pay all the VAT to the tax authority to secure a VLN that will allow him to continue to re-sell the purchased supplies. No VAT is paid to the business that sells without a VLN. MTIC is eliminated, and the commercial chain continues uninterrupted. It is expected that the merchant that sold without a VLN will be penalized (and that business may find it more difficult to secure a VLN in the future because a risk assessment would suggest that this trader needs more careful oversight).

Example #1

VLN Import Fact Pattern

If business B-1 in France sells goods or service to a business (B-2) in the UK, B-1 will zero rate and B-2 will request a VLN (for the reverse charge) from HMRC (VLN-1). The VLN request will include the essential elements of the invoice received from B-1.

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48 A similar bar code will be added to each cash register receipt issued by Quebec restaurants under their enforcement effort directed against Zappers. The Sales Recording Module (SRM) is a device that secures ECR data and uses it to digitally sign each receipt with a bar code that can be read with a hand-held optical scanner. This will allow short inspections – where an auditor in a thirty-minute visit, observes that customers are receiving receipts, and then quickly verifies (with the scanner) that the receipts being issued are recorded in the SRM. Full inspections can follow in cases of irregularities. Gilles Bernard, Solutions for the Under-reporting of income in the Restaurant Sector, Federation of Tax Administrators Annual Conference, Denver Colorado (June 2, 2009) powerpoint slides at 15-17 (on file with author).

49 A number of Brazilian states and the federal government signed an agreement on September 30, 2005 to create (1) the "e-invoice" ("Nota Fiscal Eletrônica") and (2) the "auxiliary document of the e-invoice" ("Documento Auxiliar da Nota Fiscal Eletrônica"). AJUSTE SINIEF N.º 07 DE 30 DE SETEMBRO DE 2005 available at: http://www.sef.rj.gov.br/legislacao/tributaria/convenios_ajustes_protocolos/confaz/ajustes/2005/aj05007.shtml. On December 20, 2005, through the ATO COTEPE/ICMS N.º 72 DE 20 DE DEZEMBRO DE 2005 http://www.sef.rj.gov.br/legislacao/tributaria/convenios_ajustes_protocolos/confaz/pareceres_ecf/2005/ato72_05.shtml, the structure of the e-invoice was established and testing was initiated with nineteen companies and those companies and six states. The program has been deemed a success and has been extended.
The HMRC will perform a risk assessment, and if B-2 is deemed to be a low risk importer (the risk we are concerned with is whether or not B-2 is likely to “go missing”), then a VLN number will issue.

VLN-1 is an encrypted identifier that will be the basis of subsequent VLNs. The B-2 to B-3 transaction will be accompanied by VLN-2. It will be requested by B-2, and will include within its encryption base not only data related to the B-2/B-3 transaction, but data from VLN-1. This allows for the construction of a digital trail. B-3 will not be allowed a deduction for VAT paid if either there is no VNL on the invoice B-3 receives, or if the VLN it receives on the invoice is invalid.

Chart #1

VLN-1&2 – encrypted numeric & scanned bar code on invoice identifying vendors, goods & trail. One number merges all data.

Automated request for a “reverse charge” VLN followed by a request for a re-sale VLN(essential elements of invoice)

- Good/service code
- Quantity
- Price paid
- Vendor ID
- Vendee ID

Confirming the VLN – OK to pay VAT?
Example #2
Sale Without Valid VLN Fact Pattern

As before (B-1, a business in France sells goods or service to business B-2 in the UK; B-1 will zero rate; B-2 applies for a VLN for the reverse charge) B-2 receives VLN-1 from HMRC after a risk assessment determines that B-2 is a low-risk-to-go-missing importer.

However (for some reason) B-2 re-sells to B-4 without securing a re-sale VLN. In this situation B-4 would be unlikely to pay VAT to B-2, because B-4 would be denied a VAT deduction for the amount paid. Instead, if B-4 wants to complete the trade it will pay the VAT directly to the Treasury, effectively performing a reverse charge. B-4 will now receive (from HMRC’s Computer System) a VLN number that will allow it to deduct the VAT upon re-sale.

When the re-sale occurs B-4/B-5 there will be a request for a VLN for this transaction (it may be that quantities are different for the B-2/B-4 transaction; changes could have been made in the product). With the new VLN (which would associate back to the VLN B-4 received from HMRC, and also associate back to the VLN B-2 got from HMRC) it will be possible to make a sale to B-5, impose domestic VAT, and remit it in the normal manner.
Certified tax software and a conditional change in the standard place of supply rules can solve MTIC. Certified software is currently being used in the US retail sales tax by 23 states\textsuperscript{50} under the Streamlined Sales and Use Tax Agreement (SSUTA).\textsuperscript{51} The same software mechanisms could be applied to the VAT to solve missing trader fraud.

\textsuperscript{50}These twenty-three states are divided into two groups, the full members, and the associate members. A full member state is a state that is in compliance with the Streamlined Sales and Use Tax Agreement through its laws, rules, regulations, and policies. Those states are: Arkansas, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Oklahoma, Rhode Island, South Dakota, Vermont, Washington, West Virginia, Wisconsin (as of Oct. 1, 2009) and Wyoming. An associate member state is a State that has achieved substantial compliance with the terms of the Streamlined Sales and Use Tax Agreement taken as a whole, but not necessarily each provision, and there is an expectation that the state will achieve compliance by January 1, 2008. Those states are: Ohio, Tennessee, and Utah, see \url{http://www.streamlinedsalestax.org} (last visited Jan. 24, 2009).


\textit{D-VAT}

Electronic copy available at: https://ssrn.com/abstract=1677997
Similar to the VLN proposal the D-VAT proposal changes the place of supply (and thereby the party who was required to remit the tax) based on whether or not the businesses involved in the transaction employed certified tax software. Under the VLN the determinant was whether or not a valid VLN appears on the invoice.

**Certified tax software solution.** A testing regime for the certification of enterprise-level transaction tax software is required.\(^5\) The software would be comprehensive – capable of: (a) determining the correct tax for each transaction and calculate the VAT amount due, (b) posting this amount on the appropriate invoice, (c) linking each VAT input or output amount to the correct VAT return, and (d) completing the VAT return accurately. In addition, the software will need to verify whether or not the companion system used by the other trader is also using certified software or not.

Business use of certified software is voluntary. In some instances however, notably when an enterprise is heavily engaged in transactions deemed inherently prone to missing trader fraud – like tradable emissions permits, cell phones, or computer chips – a jurisdiction might make certified software mandatory. In addition, in a judicial proceeding the government could seek (as a fraud remedy) the use of certified software “going forward,” because of proven instances of fraud in the past.\(^\)\(^53\)

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\(^5\) The SSUTA certification process involves measuring software against three third party standards; (1) the AICPA’s SAS 94 [American Institute of Certified Public Accountants, Professional Standards, Vol. 1 AU § 319 The Effect of Information Technology on the Auditor’s Consideration of Internal Control in a Financial Statement Audit, as amending SAS No. 55 Consideration of Internal Control in a Financial Statement Audit]; and (2) the US-GAO Federal Information Systems Control Audit Manual [U.S. Government Accounting Office, Accounting and Information Management Division, Federal Information Systems Control Audit Manual, (FISCOM) Vol. 1 (GAO-AIMD12.19.6) available at http://www.gao.gov/special_pubs/ai12.19.6.pdf]. In addition, software developers must comply with (3) ISO Number 17799 [International Organization for Standardization, ISO 17799: Information Technology, Security Techniques, Code for Information Security Management (ISO/IEC 17799:2005)]. A discussion of similar standards for certification and accreditation of software can be found in the recent O.E.C.D. materials [Electronic Commerce: Facilitating Collection of Consumption Taxes on Business-to-Consumer Cross-Border E-Commerce Transactions, O.E.C.D. (Feb. 11, 2005) at 9 & 17-18 available at http://www.oecd.org. Indicating that, “… a global intermediary may be based in one country and would undertake intermediary activities in as many countries as suppliers are required to collect and remit consumption taxes on behalf of e-commerce suppliers. In cases where satisfactory levels of approval or financial security are evident, countries could be more relaxed …”. The OECD discusses a range of government “approvals” for tax accounting software. At one extreme is “accreditation,” an approval process functions simply as a mechanism to “formally identify” software that meets certain criteria of acceptability. At the other extreme is “certification,” an approval process that designates software as “an officially authorized mechanism to perform specified functions.”].

\(^53\) This was the approach taken by Judge Lise Gaboury of the Court of Quebec in the fraud case against the 28 restaurant chain Casa Grecque. In this instance the fraud involved installing an automated sales skimming program called a Sales Zapper in the point of sale system (the networked electronic cash register). In the Budget Speech of March 23, 2006 the Minister of Revenue had announced the adoption of an automated system [module d’enregistrement des vents] that would be voluntary until 2011. Judge Gaboury noted that the system was expected to be available by October 1, 2008 and required all of the Casa Grecque restaurants to adopt it at this time as a condition of remaining in business. Revenue Quebec, Des restaurants de la chaîne Casa Grecque coupables de fraude fiscal (in French only) available at: http://www.revenu.gouv.qc.ca/eng/ministere/centre_information/communiques/ev-fisc/2006/10juillet.asp
Four examples. If jurisdictions were to adopt certified tax software regimes there are four possible permutations of transactions among enterprises using certified and non-certified tax software solutions. They are set out below.

Assume a taxable transaction between A and B where the parties are in different jurisdictions (this could be the sale of goods or tradable services among Member States of the EU, or a sale of tradable services between any two VAT jurisdictions). Under standard formulations, the transaction will be zero-rated leaving A’s jurisdiction and subject to a reverse charge entering B’s jurisdiction.

If B is using a certified system, there should be no problem with this transaction. A certified system will always perform a required reverse charge regardless of the certification of the other party’s system. B’s VAT return will be properly prepared along with all related reports, and the funds will be properly remitted to the government. If there is a problem it might only be when A is not using a certified system. The following summarizes these applications:

1. A certified; B certified. If A and B are both using certified systems the zero-rating and the reverse charge will be properly made, reported, and the VAT remitted to B’s government, even if the transactions are occurring in suspect classes of supplies (cell phones, computer chips CO2 certificates or VoIP).

2. A not certified; B certified. If A is not using a certified system and B is using a certified system, then B will reverse charge. The only question will be whether A’s jurisdiction will allow a zero-rating in this case. B’s certified system will perform a reverse charge. If A was engaged in making supplies in a suspect industry, zero-rating could be denied (if not, then zero-rating might be allowed under traditional rules). The question would likely come down to whether or not A’s jurisdiction is willing to accept B’s certification as proof that A had fulfilled a due diligence obligation to verify that B was not participating in missing trader fraud. If so, then A should be allowed to zero-rate the sale.

3. A certified; B not certified. If A is using a certified system and B is not, then A’s system would recognize this and it would not zero-rate the transaction if it occurred in a suspect class of supplies. Instead, it would impose the domestic tax. B would then be in a difficult situation. Its’ purchases would be burdened with the VAT of another jurisdiction, and it would remain obligated to comply with the reverse charge in its own jurisdiction. Either double taxation or procedural complexity (filing for refunds in A’s jurisdiction) would result. B would most likely either seek a domestic supplier (who would charge domestic VAT) or install its own certified system. This is the desired result in suspect supplies.

4. A not certified; B not certified. If A is not using a certified system and neither is B, then the critical question is whether or not the transaction is deemed to be within a suspect class of high-risk supplies. If for example A’s jurisdiction
considered trade in cell phones to be suspect, then it should make all cell phone transactions taxable at regular rates (domestic and cross-border). A will not be allowed to deduct VAT paid on cell phone purchases, and it will be required to collect VAT on all cell phone sales. In addition, B’s jurisdiction will require VAT to be collected under a reverse charge.

It is expected – in a certification regime that is extended throughout a federal system (the EU or Canada) – that notifications of certified status between automated systems would be automatic, handled through a secure on-line connections. Dual notifications would be expected: (1) A’s system, for example, would receive direct on-line notification that B’s system is certified from B’s system; in addition (2) B’s status as a firm using certified VAT software would be confirmed through an on-line acknowledgement by the tax administration in B’s Member State. All of this could occur almost instantly. There are a variety of ways to do this but the most proven and secure would be through the use of public key infrastructure (PKI).54 A’s system would access the public key associated with B and use it to confirm that B’s system was certified. With this knowledge, A would then draft an invoice without VAT and forward it to B. In this way A would know that B’s system would perform the reverse charge.

In a sense this is simply automated due diligence. But in another sense, it is certified due diligence. In an abundance of caution, it is expected that B’s certified system will perform a reverse PKI inquiry (when it is notified that A’s system is checking for certification). It would want to determine (in advance) that the invoice it is receiving (without VAT) from for A is correctly issued.

CONCLUSION

The recent appearance of MTIC fraud in tradable CO2 permits and VoIP is a very serious warning for the global VAT system. The size and scope of these frauds make it very clear that this missing trader fraud is huge and it is spreading. The speed with which it spreads is a reflection of the technology that makes it work. In tradable services this fraud has no boundaries.

Three technology solutions are presented here. The RTvat and the VNL are applied to all transactions in a VAT system. The RTvat changes the underpinnings of the VAT. Moving it from an invoice to a settlement system. The VLN on the other hand, leaves the basic structure of the VAT untouched, and simply adds an encrypted “tracer code” to every invoice. The D-VAT accomplishes much of what the VLN does, but uses certified tax software. The D-VAT can be applied selectively (to suspect classes of supplies). It is also a voluntary system (admittedly with a number of incentives to get businesses to “sign-up”). The D-VAT is the only solution that can be extended to cover B2C transactions.

54 PKI is information technology infrastructure that enables users of a basically unsecure public network (such as the Internet) to securely and privately exchange data through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority. In this case the trusted authority would be the Member State that certifies the transaction tax software in the target entity.
If the US is serious about adopting a VAT, it needs to consider the frauds that this tax facilitates. They need to be pre-empted before the tax is enacted. Technology needs to be placed at the service of the tax collector, not the fraudster.