



# International Developments Towards Reliable Information

*Ben, B.G.A.M. van der Zwet RA  
EDP-auditor  
Dutch Tax Administration*

*Belastingdienst*

# Programma

- ▶ Introduction
- ▶ Why Governments Care
- ▶ What is the problem
- ▶ How can WE solve it

# Introduction

- ▶ Ben van der Zwet
- ▶ IT-auditor
- ▶ Cash Registers
  - ▶ Investment in knowledge
  - ▶ Demands / obligations
  - ▶ Criminal Pursuit Developers
  - ▶ Fiscalis PG cashregisters I and II

[bgam.van.der.zwet@belastingdienst.nl](mailto:bgam.van.der.zwet@belastingdienst.nl)



**your cash register  
and the fiscal  
accounting  
obligations**

- Securing data

Are the transaction data secured against changes later on?

- Audit trail

Are the data retained and secured in such a manner that it can be traced how these data originated during an audit?

- Auditable within a reasonable period of time

Are the data being retained and are they accessible (or: are they in a legible format) in such a manner that a tax audit can be made within a reasonable period of time?

After a certain time can the data still be produced or reproduced within a reasonable period of time? Even if a new (cash) payment system has been bought, or after a version change ?

Has the audit file for cash registers been incorporated in the payment software?

## 2 XML Audit file for Cash registers (XAA)

2.1 A tool in tax audits

2.2 The XAA concept: some background information

2.3 Advantages of the XAA

2.4 XML platform

2.5 The XAA industry standard

2.6 Security and packing

2.7 Physical packing and exchange of data

2.8 Technical information

```
<!-- XML tagset used: Standard XML -->
<!-- Generated at: 02-07-2007 16:53:54 -->
<!-- Generated using: EC-Design 1.3.5 (http://www.ec-design.nl) -->
<!-- Generated by: Jeffrey Outshoven, ha Robert Tenback van de Belastingdienst -->
<!-- Organisation: Branche Initiatieven -->
<xsd:schema targetNamespace="http://www.auditfiles.nl/XAA/1.2"
xmlns:xaa="http://www.auditfiles.nl/XAA/1.2"
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```

Account community auditfiles

[www.oswo.nl/cso](http://www.oswo.nl/cso)

XBRL

3

3

3

4

4

4

4

5

5

6

6

6



EUROPEAN COMMISSION

DIRECTORATE-GENERAL

TAXATION AND CUSTOMS UNION

Indirect taxation and Tax administration

**Administrative cooperation and fight against fiscal fraud**

*Restricted – for administrative use only*

**FISCALIS FPG 12**

**Cash Register Project Group**

**Cash Register Good Practice Guide**

*Belastingdienst*

Berlin, PTB, 2009 Wednesday february 18th





Website:

[www.itaide.org](http://www.itaide.org)

dia

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School of Law

**CALIFORNIA ZAPPERS:  
A PROPOSAL FOR CALIFORNIA'S COMMISSION ON THE  
21ST CENTURY ECONOMY**

Boston University School of Law Working Paper No. 09-01  
(January 8, 2009)

**Richard T. Ainsworth**

This paper can be downloaded without charge at:

<http://www.bu.edu/law/faculty/scholarship/workingpapers/2009.html>

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Berlin, PTB, 2009 Wednesday february 18th

# Programma

- ▶ Introduction
- ▶ **Why Governments (should) Care**
- ▶ What is the problem
- ▶ How can WE solve it

SKIP

# Why Governments Care

- ▶ Money, Tax evasion
  - ▶ Quebec \$ 425 million
    - ▶ **16 % of sales not reported**
  - ▶ California: \$ 700 million
  - ▶ BRH Germany: Billions
  - ▶ Sweden: 150 - 1.500 million

WHO PAYS ?

DO POLITICIANS CARE ?

▶ **CARE FOR A GOOD SOCIETY**

# Care for a good society

- ▶ **Jean-Marc Fournier Quebec:**
  - ▶ \$ 425 m. = 7.000 nurses
  - ▶ Fairness, unfair competition
    - ▶ to compliant entrepreneurs
    - ▶ to employees
- ▶ **Sweden:** misuse of alcohol!
- ▶ **NL:** Safe Taxi Transport
- ▶ **USA - EU:** Green Lane (IT aide)

# Why Governments Care

- ▶ Euro's , Tax - gap  
Cash registers have a big Tax hole
- ▶ **Care**
  - ▶ **A fair and safe society**
  - ▶ **An open economy, with fair competition**



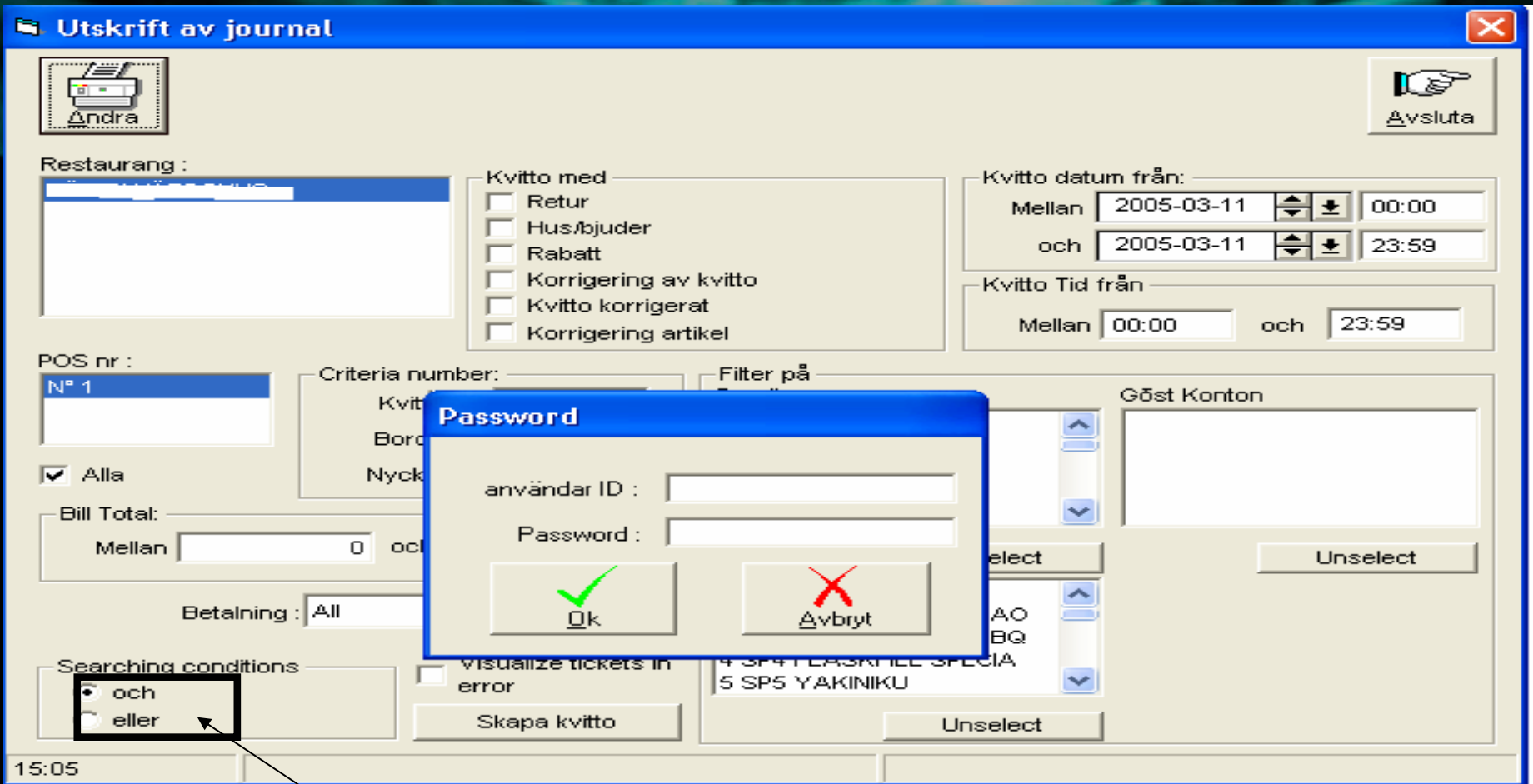
# Programma

- ▶ Introduction
- ▶ Why Governments Care
- ▶ What is the problem
- ▶ How can WE solve it

# What is the problem

- ▶ Zappers and Phantomware
  - ▶ Automated sales suppression
  - ▶ Programs mis / used for Cash Skimming
  - ▶ Phantom ware; internal
  - ▶ Zappers, external, USB sticks etc.
  - ▶ International!





### Double-Click on the secret module

It is not all that apparent what you need to do here, but by double clicking in the box in the lower left, entering an ID and a password, you will get to the next screen – the Electronic Journal (which can be adjusted).

**Elektronisk journal**

Change password

Change

End

Restaurant : POS Nb : N° 1 Waiters : 2 CAFE 2, 3 SERV 3, 4 SERV 4, 5 SERV 5 Date: 2005-03-11 au 2005-03-11

Bill Total: Upper to 0 Receipt time: Entre 00:00 och 23:59

All Unselect

| List of tickets paid in cash |       |           | Replacement tickets |      | Articles à exclure: 0 |           |             |               |
|------------------------------|-------|-----------|---------------------|------|-----------------------|-----------|-------------|---------------|
| Date                         | Time  | Nb ticket | POS                 | Wait | Type                  | Amount    | Replaced by | Total removed |
| 05-03-11                     | 11:13 | 000002/1  | 1                   | 1    | Direkt                | 65,00 kr  |             |               |
| 05-03-11                     | 11:20 | 000003/1  | 1                   | 1    | Direkt                | 68,00 kr  |             |               |
| 05-03-11                     | 11:30 | 000004/1  | 1                   | 1    | Direkt                | 60,00 kr  |             |               |
| 05-03-11                     | 11:35 | 000005/1  | 1                   | 1    | Direkt                | 136,00 kr |             |               |
| 05-03-11                     | 11:44 | 000006/1  | 1                   | 1    | Direkt                | 76,00 kr  |             |               |
| 05-03-11                     | 11:46 | 000007/1  | 1                   | 1    | Direkt                | 136,00 kr |             |               |
| 05-03-11                     | 11:48 | 010001/2  | 1                   | 1    | Bord                  | 45,00 kr  |             |               |
| 05-03-11                     | 11:49 | 000008/1  | 1                   | 1    | Direkt                | 68,00 kr  |             |               |
| 05-03-11                     | 11:54 | 000010/1  | 1                   | 1    | Direkt                | 68,00 kr  |             |               |
| 05-03-11                     | 11:55 | 000011/1  | 1                   | 1    | Direkt                | 68,00 kr  |             |               |
| 05-03-11                     | 11:55 | 000012/1  | 1                   | 1    | Direkt                | 130,00 kr |             |               |
| 05-03-11                     | 11:55 | 000013/1  | 1                   | 1    | Direkt                | 35,00 kr  |             |               |
| 05-03-11                     | 11:56 | 000014/1  | 1                   | 1    | Direkt                | 68,00 kr  |             |               |
| 05-03-11                     | 11:56 | 000015/1  | 1                   | 1    | Direkt                | 65,00 kr  |             |               |
| 05-03-11                     | 11:57 | 000016/1  | 1                   | 1    | Direkt                | 73,00 kr  |             |               |
| 05-03-11                     | 11:58 | 000017/1  | 1                   | 1    | Direkt                | 136,00 kr |             |               |
| 05-03-11                     | 11:59 | 000018/1  | 1                   | 1    | Direkt                | 65,00 kr  |             |               |
| 05-03-11                     | 12:04 | 000019/1  | 1                   | 1    | Direkt                | 65,00 kr  |             |               |

Select the tickets to replace in the list  Manual selecting of replacement tickets

Total Sales : 40 836,31 kr Amount to remove : Threshold amount: 100

- Total P Total: 0,00 kr

Total Gross: 40 836,31 kr

Buttons: Analyse, Replace auto, Validate

### “Manipulate-able” Electronic Journal

Notice that we can either

- (1) select a ticket to adjust, or
- (2) auto-replace

So, assume we take the selection of a ticket approach ... (1),

When we select the first item (ticket number 2/1) we then get ...

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Berlin, PTB, 2009 Wednesday february 18th



Change password



Restaurant :  POS Nb :  Waiters :  Date :  au

All  Bill Total: Upper to  0 Receipt time: Entre  00:00 och  23:59

| List of tickets paid in cash   | Replacement tickets  | Articles à exclure: 0 |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
|--|--|-----------------------|--------------|----------|--------------|-----------|------------------|----------|------------------|----------|-----------------|----------|---|-----------|---|------------------|---|----------|--|
| <p>Article List :</p> <table border="1"> <tr><td>134 D</td><td>60,00 kr</td></tr> <tr><td>233 ESPRESSO</td><td>25,00 kr</td></tr> <tr><td>534 FAUSTINO</td><td>238,00 kr</td></tr> <tr><td>330 FLASKÖL 33CL</td><td>35,00 kr</td></tr> <tr><td>334 FLASKÖL 50CL</td><td>45,00 kr</td></tr> <tr><td>341 FOLKÖL 33CL</td><td>25,00 kr</td></tr> <tr><td>210 FYRA SMÅ RÄTTER</td><td>105,00 kr</td></tr> </table> | 134 D  | 60,00 kr              | 233 ESPRESSO | 25,00 kr | 534 FAUSTINO | 238,00 kr | 330 FLASKÖL 33CL | 35,00 kr | 334 FLASKÖL 50CL | 45,00 kr | 341 FOLKÖL 33CL | 25,00 kr | 210 FYRA SMÅ RÄTTER   | 105,00 kr | <p>Tickets</p> <table border="1"> <tr><td>334 FLASKÖL 50CL</td><td>1</td><td>45,00 kr</td></tr> </table> <p>Total: 45,00 kr</p> | 334 FLASKÖL 50CL | 1 | 45,00 kr |  |
| 134 D  | 60,00 kr   |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 233 ESPRESSO   | 25,00 kr   |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 534 FAUSTINO   | 238,00 kr  |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 330 FLASKÖL 33CL   | 35,00 kr   |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 334 FLASKÖL 50CL   | 45,00 kr   |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 341 FOLKÖL 33CL  | 25,00 kr   |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 210 FYRA SMÅ RÄTTER  | 105,00 kr  |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| 334 FLASKÖL 50CL   | 1  | 45,00 kr              |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| <p>Price Level : Normal</p> <p>List of replacement tickets</p> <table border="1"> <tr><td>334 FLASKÖL 50CL</td><td>1</td><td>45,00 kr</td></tr> <tr><td>Cash</td><td></td><td>45,00 kr</td></tr> <tr><td>MOMS 25%</td><td></td><td>9,00 kr</td></tr> <tr><td>*****</td><td></td><td>*****</td></tr> </table>   | 334 FLASKÖL 50CL   | 1                     | 45,00 kr     | Cash     |              | 45,00 kr  | MOMS 25%         |          | 9,00 kr          | *****    |                 | *****    | <p>Buttons: Add, move, Erase Ticket, Add, Erase, Save, Validate</p> |           |   |                  |   |          |  |
| 334 FLASKÖL 50CL   | 1  | 45,00 kr              |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| Cash   |  | 45,00 kr              |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| MOMS 25%   |  | 9,00 kr               |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| *****  |  | *****                 |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |
| <p>Total Sales : 40 836,31 kr</p> <p>- Total P Total: 0,00 kr</p> <p>Total Gross : 40 836,31 kr</p>  | <p>Amount to remove : <input type="text"/> Threshold amount: 100</p> |                       |              |          |              |           |                  |          |                  |          |                 |          |   |           |   |                  |   |          |  |

Replace the Lunch Buffet (65,00) – with a beer (45,00)

Notice the price reduction (we could have gone lower) – Notice the tax reduction  
The Swedish VAT is at 25%

**Elektronisk journal**

Change password

Change End

Restaurant: POS Nb: N° 1 Waiters: 2 CAFE 2, 3 SERV 3, 4 SERV 4, 5 SERV 5 Date: 2005-03-11 au 2005-03-11 Bill Total: Upper to 0 Receipt time: Entre 00:00 och 23:59

**List of tickets paid in cash**      **Replacement tickets**      **Articles à exclure: 0**

| Date     | Time  | Nb ticket | POS | Wait | Type   | Amount    | Replaced by | Total removed |
|----------|-------|-----------|-----|------|--------|-----------|-------------|---------------|
| 05-03-11 | 11:13 | 000002/1  | 1   | 1    | Direkt | 65,00 kr  | Nr1         | 45,00 kr      |
| 05-03-11 | 11:20 | 000003/1  | 1   | 1    | Direkt | 60,00 kr  |             |               |
| 05-03-11 | 11:30 | 000004/1  | 1   | 1    | Direkt | 136,00 kr |             |               |
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| 05-03-11 | 11:46 | 000007/1  | 1   | 1    | Direkt | 45,00 kr  |             |               |
| 05-03-11 | 11:48 | 010001/2  | 1   | 1    | Bord   | 68,00 kr  |             |               |
| 05-03-11 | 11:49 | 000008/1  | 1   | 1    | Direkt | 68,00 kr  |             |               |
| 05-03-11 | 11:54 | 000010/1  | 1   | 1    | Direkt | 130,00 kr |             |               |
| 05-03-11 | 11:55 | 000011/1  | 1   | 1    | Direkt | 35,00 kr  |             |               |
| 05-03-11 | 11:55 | 000012/1  | 1   | 1    | Direkt | 68,00 kr  |             |               |
| 05-03-11 | 11:55 | 000013/1  | 1   | 1    | Direkt | 73,00 kr  |             |               |
| 05-03-11 | 11:56 | 000014/1  | 1   | 1    | Direkt | 136,00 kr |             |               |
| 05-03-11 | 11:56 | 000015/1  | 1   | 1    | Direkt | 65,00 kr  |             |               |
| 05-03-11 | 11:57 | 000016/1  | 1   | 1    | Direkt | 65,00 kr  |             |               |
| 05-03-11 | 11:58 | 000017/1  | 1   | 1    | Direkt | 65,00 kr  |             |               |
| 05-03-11 | 11:59 | 000018/1  | 1   | 1    | Direkt | 65,00 kr  |             |               |
| 05-03-11 | 12:04 | 000019/1  | 1   | 1    | Direkt |           |             |               |

Total Sales: 40 836,31 kr      Amount to remove:      Threshold amount: 100

- Total P Total: 20,00 kr

Total Gross: 40 816,31 kr

Analyse Replace auto Validate

**Manipulated Electronic Journal (pro-forma)**

Here is what we have done so far – is this enough manipulation?  
 Ticket 2/1 has been changed from 65,00 to 45,00 with a reduction of 20,00 on this ticket  
 There is a running total kept (in case you want to remove more)

| Nr  | Namn         | Ant | SUM   |
|---|--------------|-----|-------|
| 21  | LUNCH B      | 1   | 65,00 |
| 1   | KONTANT      | 1   | 65,00 |
|   | MOMS 25%     | 1   | 13,00 |
| TOTAL KVITTO                                    |              |     | 65,00 |
| Direkt POS number:1                             |              |     |       |
| Bord NR:0 GÅST ANT:1 Nyk nr:1                   |              |     |       |
| 2005-03-11 11:13 Kvitto NR:000002/1 Servit NR:1 |              |     |       |
| Nr  | Namn         | Ant | SUM   |
| 334   | FLASKÖL 50CL | 1   | 45,00 |
| 1   | KONTANT      | 1   | 45,00 |
|   | MOMS 25%     | 1   | 9,00  |
| TOTAL KVITTO                                    |              |     | 45,00 |
| Direkt POS number:1                             |              |     |       |
| Bord NR:0 GÅST ANT:1 Nyk nr:1                   |              |     |       |
| 2005-03-11 11:13 Kvitto NR:000002/1 Servit NR:1 |              |     |       |

Original

Manipulated

### Comparison: Original & Manipulated Electronic Journal

Notice the reduction in gross sales & the reduction in tax.

If this record is tied into inventory control, adjustments in related purchases will be necessary [some zappers will do this for you] because you may have just "sold" more beer than you ordered

# T00120050311.TIC - Anteckningar

Arkiv Redigera Format Visa Hjälp

```
A 334 1 4500?  
R 1 1 4500?  
X 1 1 900?  
C 0 2 0G  
D 0 1 1 1 1L  
-1103051113000002/1 45000767000600LH  
F  
A 23 1 6800G  
R 1 1 6800D  
X 1 1 1360B  
C 0 2 0G  
D 0 1 1 1 1L  
-11030511120000003/1 68000767600600LN  
F
```

**Manipulated**

```
A 21 1 6500H  
R 1 1 6500I  
X 1 1 1300P  
C 0 2 0G  
D 0 1 1 1 1L  
-1103051113000002/1 650007670006001H
```

**Original**

## Comparison of the TIC-files – Manipulated & Original

Notice the “?” in the Manipulated version in contrast with the letters “H”, “I” & “P” in the original version. This one of the tell-tale signs of manipulation in this particular program. It may indicate that the system has not been correctly updated since the manipulation procedure.

# Manco's Sales Administration



Real world



Primary registration



Totals,  
Accounting,  
Tax return

Selling

= ≠

E POS

integrity ≠

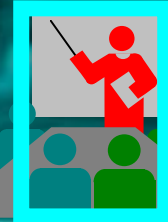
= ≠

Tax return

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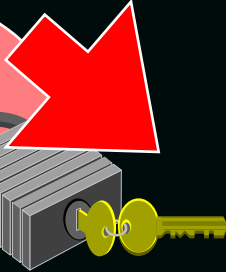




transaction

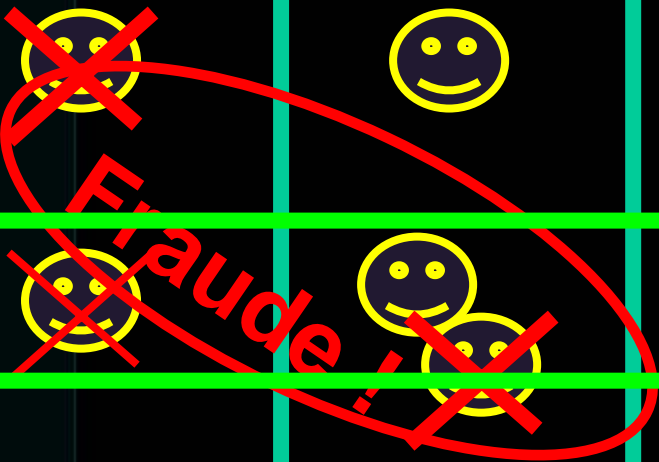


Till



Z-report, GL, Tax- return

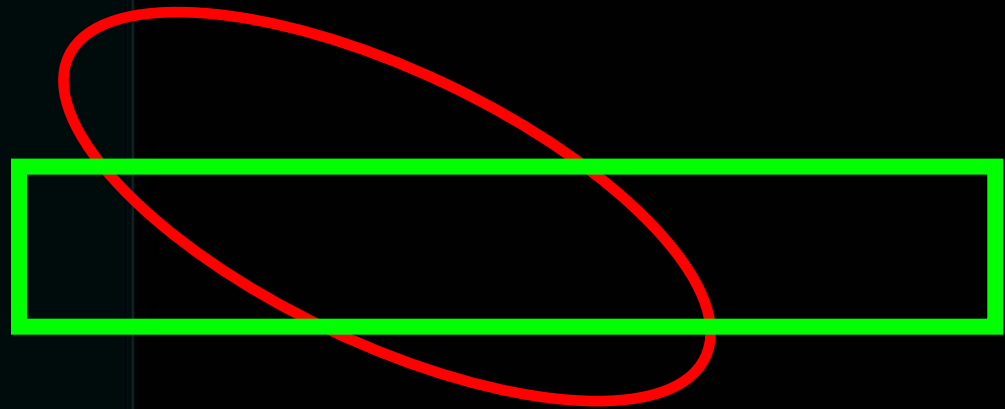
|                   |         |        |
|-------------------|---------|--------|
| <del>Smiley</del> | Smiley  | Smiley |
| <del>Smiley</del> | Smiley  | Smiley |
| Smiley?           | Smiley? | Smiley |



De... g...st

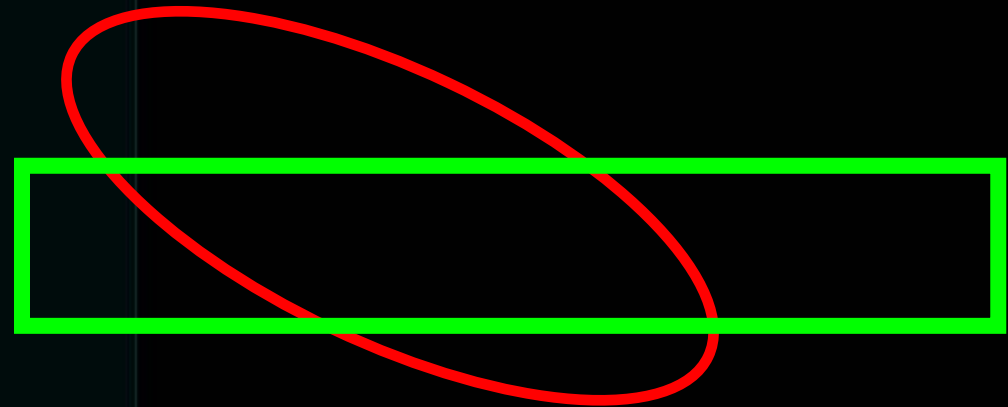


# What is the problem



# What is the problem

- ▶ Small : Not registering sales
- ▶ Medium : Zappers and Phantomware
- ▶ Big : Normally no issue



# Programma

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# Why Governments Care

- ▶ Euro's , Tax - gap  
Cash registers have a big Tax hole
- ▶ **Care**
  - ▶ **A fair and safe society**
  - ▶ **An open economy, with fair competition**



# What is the problem

- ▶ **Small : Not registering sales**
- ▶ Medium : Zappers and Phantomware
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# How can WE solve it

- ▶ PRESENT APPLICATIONS
- ▶ SOLUTIONS – POLICY ORIENTATIONS



# How can WE solve it

- ▶ SOLUTIONS – PRESENT APPLICATIONS
  - ▶ GREECE:  
FEDs; FECRs, AFED Printers; FESDs
  - ▶ GERMANY  
EMBEDDING SMART CARDS IN ECRs
  - ▶ QUEBEC, CANADA,  
MEV
  - ▶ SWEDEN  
CONTROL UNIT

# How can WE solve it

- ▶ SOLUTIONS – PRESENT APPLICATIONS
  - ▶ totals > detailed data
  - ▶ Secure box > Secure data
    - ▶ e-signing, PKI
  - ▶ Secure data > Secure view
    - ▶ IT Aide [dia](#)
  - ▶ Using Standards CEN, ISO, CC EAL
  - ▶ CERTIFICATION OF THIRD PARTY SERVICE PROVIDERS
    - ▶ USA, SSUTA
    - ▶ SAAS ?

# How can WE solve it

- ▶ basic rules;
  - ▶ Data needs to be stored electronically.
  - ▶ Facilities have to be implemented to export data to digital data carriers.
  - ▶ Settings of the software and the adequate database structures must support a proper audit trail.
  - ▶ Measures must be taken to assure the reliability of retained data.

# How can WE solve it

- ▶ PRESENT APPLICATIONS
- ▶ SOLUTIONS – POLICY ORIENTATIONS

# How can WE solve it

- ▶ Greece
- ▶ Turkey
- ▶ Hungary

Rules based

- ▶ Sweden ↑ Control Unit
- ▶ Germany ↑ INSIKA

- ▶ United Kingdom
- ▶ France
- ▶ The Netherlands
- ▶ Belgium
- ▶ Ireland

Principles based

- ▶ CANADA, USA, SERBIA

# How can WE solve it

- ▶ Greece
- ▶ Turkey
- ▶ Hungary
  
- ▶ Sweden ↑ **Control Unit**
- ▶ **Germany** ↑ **INSIKA**
- ▶ United Kingdom
- ▶ France
- ▶ The Netherlands
- ▶ Belgium
- ▶ Ireland
  
- ▶ **CANADA, USA, SERBIA**

Stakeholders

Standards

ISO, CEN, CC

Third Party's

SAAS, SSUTA

**Rules Based**

**Or**

**Comply**

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# Why Governments Care

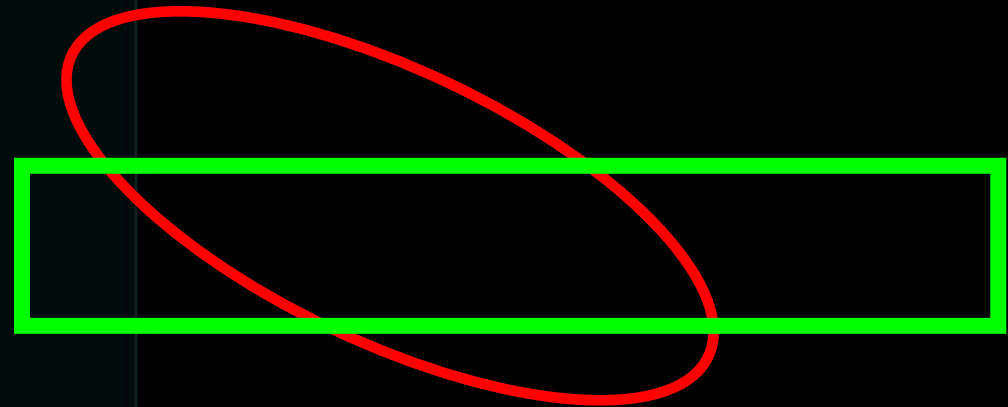
- ▶ Euro's , Tax - gap  
Cash registers have a big Tax hole
- ▶ Care
  - ▶ A fair and safe society
  - ▶ An open economy, with fair competition

WHO PAYS ?

DO POLITICIANS CARE ?

# What is the problem

- ▶ Small : Not registering sales
- ▶ Medium : Zappers and Phantomware
- ▶ Big : Normally no issue



# How can WE solve it

TAX Administration

Risk

Integrity, ACTORS

FISCAL MEMORY

FESD

SOLUTIONS

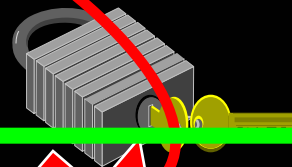
Electronic Key

Availability

XML Auditfile

INSIKA

Till



ZAPPERS

VECTRON

SHARP

ACCOUNTANCY

E-invoicing

CEN ISO standards

SW Developers

CANADA

Boston

ARTS

OECD

USERS

Belastingdienst

University of Law

SAFT

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[more](#)

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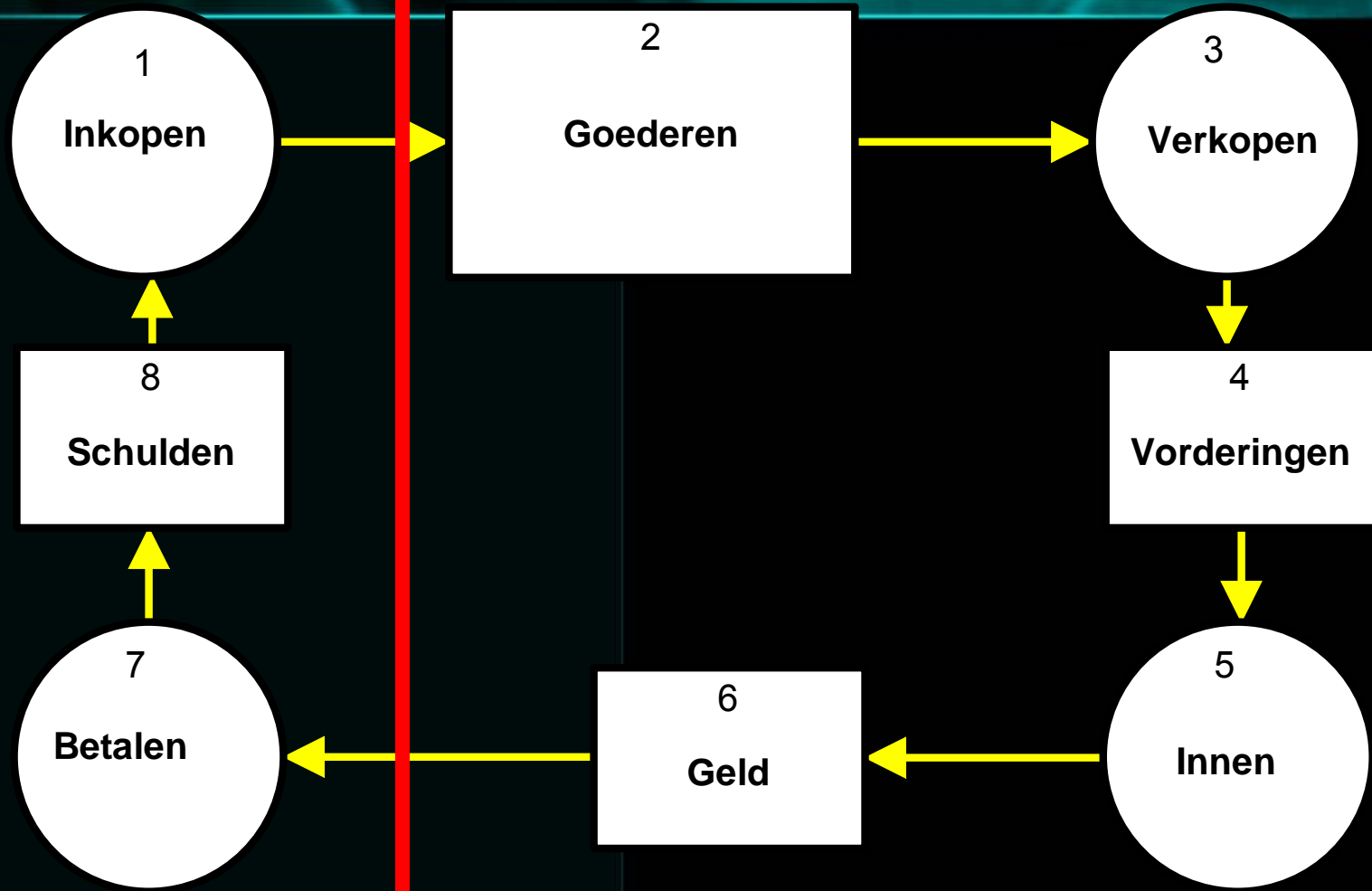
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**GRATULATIONS  
ON WHAT YOU HAVE ACHIEVED !!**

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## VALUE CYCLE AND CASH REGISTER

### Value Cycle

